

THIS MEETING IS NOT BEING LIVE-STREAMED AND ACCESS BY PHONE IS NOT AVAILABLE

Board of Education
February 22, 2023

Reed Intermediate School Library
7:00 p.m.

As citizens of our community, we will conduct ourselves in accordance with Newtown's Core Character Attributes as displayed in our character tree. We will be responsible for our actions and show respect for each other. We will interact peacefully, productively, and politely. We will be trustworthy and honest and show compassion toward others. Newtown's continued success is contingent upon our ability to persevere, to follow through with our commitments, and to stay focused on the greater good.

A G E N D A

- Item 1 PLEDGE OF ALLEGIANCE
- Item 2 LEGISLATIVE UPDATE
- Item 3 CONSENT AGENDA
 - Correspondence Report
- Item 4 **PUBLIC PARTICIPATION
- Item 5 REPORTS
 - Chair Report
 - Superintendent's Report
 - Committee Reports
 - Student Representative Reports
 - Financial Report and Transfers for the Month Ending January 31, 2023
- Item 6 PRESENTATIONS
 - First Read of Honors Physics Curriculum
 - IReady Mid-Year Data Update
- Item 7 OLD BUSINESS
 - Second Read and Action on Policies:
 - 4118.12/4218.12 Freedom of Speech and Use of Media Including Social Media
 - 4118.5/4218.5 Acceptable Use of Computer Systems and Electronic Communications
 - 9300 Methods of Operation (to be rescinded)
 - Transportation Update
- Item 8 NEW BUSINESS
 - Action on the Minutes of February 7, 2023
- Item 9 **PUBLIC PARTICIPATION
- Item 10 ADJOURNMENT

***The Board encourages the public to share thoughts and concerns at two points during Regular Meetings. During the first Public Participation, the Board welcomes commentary regarding items on the agenda. During the second Public Participation, commentary may also include issues for the Board to consider in the future. After being recognized, please state your name and address for the record. We request that speakers be respectful and limit comments to three minutes. The Board of Education does not discuss personnel items or student matters in public nor does it engage in dialogue during either public comment period. If you desire more information or responses to specific questions, please email the Board.*

**NEWTOWN BOARD OF EDUCATION
MONTHLY FINANCIAL REPORT
JANUARY 31, 2023**

SUMMARY

The seventh financial report for the year continues to provide year to date expenditures, encumbrances and information for anticipated obligations. Many of the accounts within our major objects have been forecasted as “full budget spend” in order to more accurately project an estimated year-end balance. These balances are monitored closely and adjusted each month in order to capture any changes and fluctuations that occur throughout the year.

During the month of January, the district spent approximately \$8.1M for all operations. About \$4.1M was spent on salaries with the remaining balance of \$4.0M spent on all other objects (\$2.1M was spent on the 3rd installment of our employee health benefits). All expenditures appear to be within normal limits at this time.

The change over the last month’s year-end projection has resulted in an increase of \$6,833; now showing a total projected balance of \$393,158.

This report also includes a transfer request in the amount of \$48,554.

- \$25,000 from salaries and benefits to benefits (*object 100 & 200*).
 - Requesting to transfer \$12,875 from educational assistant’s salary plus \$12,125 from medical benefits to cover the shortfall in pensions. The shortfall in pensions is due to additional and unforeseen costs in the defined contribution pension plan. It is possible that this account may require one more adjustment before year-end as fluctuations are unpredictable due to employee turnover.

- \$23,554 from transportation services to contracted services (*all within object 500*).
 - Requesting to transfer \$20,000 for the remaining balance due to Partner’s for Educational Leadership. This company was approved by the board on September 6th as facilitators for the NPS strategic plan. The total cost for this project is \$40,000 of which half has already been paid. We are requesting to transfer \$20,000 from the surplus in our transportation account to cover this balance due.
 - The request to transfer \$3,554 will be used to offset the deficit in in the board of education’s contracted service line.

MAJOR MOVERS

SALARY OBJECT

The overall salary object currently displays a positive position of \$476,304. Combined, these accounts increased over the prior month by \$36,547.

- **CERTIFIED SALARIES** – the overall balance in this sub-object is showing a negative balance of -\$50,137.
The balance in this sub-object changed slightly over the prior month, adding \$4,003 to the year-end projection. All certified accounts have been analyzed and adjusted based on staff changes and full-year forecasts.
- **NON-CERTIFIED SALARIES** – the overall balance in this sub-object is showing a positive balance of \$526,441.
The balance in this sub-object increased by \$32,544 over the prior month and continues to drive our overall year-end projected balance. We are still experiencing many vacancies throughout our unions and have made adjustments in our technology, nursing and special education projections.
- As of January, the following non-certified positions remain open:
 - Sixteen paraprofessionals (10 from special education), five behavioral therapists and one network specialist

EMPLOYEE BENEFITS - the overall balance in this object is showing negative -\$7,563. The driver behind this negative balance is found in the pension account and we are requesting a transfer (see above) that will rectify this negative position.

OTHER PURCHASED SERVICES – the overall position of this object is displaying a negative balance of -\$326,361, having incurred additional costs of \$35,242 over the prior month.

- **Contracted Services** – this account has experienced a negative balance over several months due to the inclusion of an outside service that provides behavioral therapists for our students. We have been unsuccessful in filling our open BT positions and these therapists are mandatory for students as outlined in their IEP plan. Currently we have 5 unfilled therapist positions.
- We now have an opportunity to use funding from the Special Education American Rescue Plan Grant as this budget has been adjusted. We will be preparing journal entry to move expenses from this line item over the grant in the amount of \$141,429. This adjustment has already been accounted for in this report.
- **Out-of-District Tuition** – this account is showing a negative balance -\$449,847. Over the prior month, the deficit in this account has increased by \$122,065 and includes anticipated additional costs in special education out-of-district tuition.
- A portion of the Excess Cost Grant revenue was received (75% of the state’s estimate which included a small adjustment from our estimate). The reimbursement rate at this time was 70%. However, there is legislation that will potentially address the funding gap that exists in the reimbursement formula and our district could potentially receive up to 85% reimbursement. We are hopeful that more information will come forth in the next few weeks.

There is concern that our special education tuition costs may be on the rise. We are anticipating additional costs in the upcoming month to be somewhere in the \$150,000 range. These anticipated costs are not included in this report.

SUPPLIES – the overall balance here is in a good position showing a positive balance of \$140,232.

- **Natural gas** – we have projected additional expenses of \$15,000 in these accounts as the cost of natural gas has been on the rise. However, based on the mild winter that we have been experiencing, we will most likely make further adjustments to these projections and we are anticipating that the negative balance will be temporary.
- **Electric** – this account now shows a positive balance of \$145,000. Included in this balance is a projected increase to the surplus of \$15,000. The large balance in these accounts has been driven by virtual net metering credits. This project has proven to be a winner as credits for this solar power roll forward into our Eversource bills; thus, lowering our overall expenses. We will continue to monitor this program and will keep the board apprised as changes occur.

ALL OTHER OBJECTS

Our account-by-account analysis will continue throughout the year and we will keep the board apprised of any issues or concerns as they arise.

FOOD SERVICES

It's been just over six months since Chartwell's has become a part of our district and they have been instrumental in revitalizing our food service program. We have made many positive changes and I can't thank our staff enough for the effort they have put forth in recruitment, retention and creating a cohesive and motivated team. Not only have there been environment upgrades in each school, but Chartwells has introduced our student's to new and exciting foods by way of their educational (and fun) programs.

Attached is a YTD timeline on the lunch program, highlighting the programs and progress that we have made.

As many of you have now heard, legislation was recently signed that will provide free meals to students for the remainder of the school year. We are waiting for more information and guidance to come from the state. Once this becomes available, we will notify families as well s the board.

EMERGENCY REPAIRS

There were no emergency repairs to report in the month of January.

REVENUE

The board of education received \$3,056.63 in tuition and \$1,658.61 in miscellaneous revenue. We also received a portion of our state aid as well as the non-public health grant. The health grant came in at \$29,997 which is over the budgeted amount of \$23,000.

We have also received a check for the fuel excise tax credit in the amount of \$36,197.40. This credit is a federal credit issued for the use of alternative fuel (propane) and was for the 2021 calendar year.

Tanja Vadas
Director of Business
February 16, 2023

**NEWTOWN BOARD OF EDUCATION
2022-23 BUDGET SUMMARY REPORT
FOR THE MONTH ENDING JANUARY 31, 2023**

OBJECT CODE	EXPENSE CATEGORY	EXPENDED 2021 - 2022	2022 - 2023 APPROVED BUDGET	YTD TRANSFERS 2022 - 2023	CURRENT BUDGET	YTD EXPENDITURE	ENCUMBER	BALANCE	ANTICIPATED OBLIGATIONS	PROJECTED BALANCE	% EXP
<u>GENERAL FUND BUDGET</u>											
100	SALARIES	\$ 51,681,024	\$ 53,701,233	\$ -	\$ 53,701,233	\$ 26,052,295	\$ 26,219,906	\$ 1,429,032	\$ 952,728	\$ 476,304	99.11%
200	EMPLOYEE BENEFITS	\$ 11,744,808	\$ 11,955,016	\$ (12,626)	\$ 11,942,390	\$ 8,613,080	\$ 2,261,889	\$ 1,067,421	\$ 1,074,984	\$ (7,563)	100.06%
300	PROFESSIONAL SERVICES	\$ 543,087	\$ 687,141	\$ (14,000)	\$ 673,141	\$ 216,344	\$ 85,160	\$ 371,637	\$ 371,637	\$ -	100.00%
400	PURCHASED PROPERTY SERV.	\$ 2,093,569	\$ 1,814,663	\$ -	\$ 1,814,663	\$ 915,475	\$ 380,803	\$ 518,385	\$ 507,839	\$ 10,546	99.42%
500	OTHER PURCHASED SERVICES	\$ 9,327,010	\$ 10,095,326	\$ 26,626	\$ 10,121,952	\$ 6,668,282	\$ 4,592,304	\$ (1,138,635)	\$ (812,274)	\$ (326,361)	103.22%
600	SUPPLIES	\$ 3,474,903	\$ 3,365,464	\$ -	\$ 3,365,464	\$ 1,742,333	\$ 201,104	\$ 1,422,027	\$ 1,281,795	\$ 140,232	95.83%
700	PROPERTY	\$ 536,285	\$ 339,710	\$ -	\$ 339,710	\$ 75,865	\$ 9,799	\$ 254,046	\$ 254,046	\$ -	100.00%
800	MISCELLANEOUS	\$ 59,271	\$ 76,086	\$ -	\$ 76,086	\$ 62,837	\$ 3,268	\$ 9,981	\$ 9,981	\$ -	100.00%
910	SPECIAL ED CONTINGENCY	\$ -	\$ 100,000	\$ -	\$ 100,000	\$ -	\$ -	\$ 100,000	\$ -	\$ 100,000	0.00%
TOTAL GENERAL FUND BUDGET		\$ 79,459,957	\$ 82,134,639	\$ -	\$ 82,134,639	\$ 44,346,511	\$ 33,754,233	\$ 4,033,895	\$ 3,640,736	\$ 393,158	99.52%
900	TRANSFER NON-LAPSING <i>(unaudited)</i>	\$ 237,879									
GRAND TOTAL		\$ 79,697,836	\$ 82,134,639	\$ -	\$ 82,134,639	\$ 44,346,511	\$ 33,754,233	\$ 4,033,895	\$ 3,640,736	\$ 393,158	99.52%

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100	SALARIES										
	Administrative Salaries	\$ 4,245,732	\$ 4,312,038	\$ (121,271)	\$ 4,190,767	\$ 2,415,722	\$ 1,791,271	\$ (16,226)	\$ (8,428)	\$ (7,798)	100.19%
	Teachers & Specialists Salaries	\$ 32,745,539	\$ 33,817,522	\$ 149,271	\$ 33,966,793	\$ 15,742,102	\$ 18,299,022	\$ (74,331)	\$ (21,092)	\$ (53,239)	100.16%
	Early Retirement	\$ 81,000	\$ 81,000	\$ -	\$ 81,000	\$ 89,000	\$ -	\$ (8,000)	\$ -	\$ (8,000)	109.88%
	Continuing Ed./Summer School	\$ 96,279	\$ 97,846	\$ 1,161	\$ 99,007	\$ 77,015	\$ 21,497	\$ 494	\$ 494	\$ -	100.00%
	Homebound & Tutors Salaries	\$ 104,026	\$ 189,413	\$ 45,185	\$ 234,598	\$ 74,011	\$ 66,568	\$ 94,019	\$ 74,019	\$ 20,000	91.47%
	Certified Substitutes	\$ 677,354	\$ 742,610	\$ -	\$ 742,610	\$ 362,848	\$ 189,965	\$ 189,798	\$ 214,623	\$ (24,825)	103.34%
	Coaching/Activities	\$ 659,048	\$ 737,184	\$ -	\$ 737,184	\$ 375,413	\$ 4,000	\$ 357,771	\$ 337,771	\$ 20,000	97.29%
	Staff & Program Development	\$ 188,833	\$ 155,128	\$ -	\$ 155,128	\$ 55,021	\$ 16,644	\$ 83,463	\$ 79,738	\$ 3,724	97.60%
	CERTIFIED SALARIES	\$ 38,797,811	\$ 40,132,741	\$ 74,346	\$ 40,207,087	\$ 19,191,133	\$ 20,388,967	\$ 626,988	\$ 677,125	\$ (50,137)	100.12%
	Supervisors & Technology Salaries	\$ 1,010,203	\$ 1,103,470	\$ 4,960	\$ 1,108,430	\$ 551,397	\$ 400,343	\$ 156,690	\$ 63,526	\$ 93,164	91.59%
	Clerical & Secretarial Salaries	\$ 2,305,020	\$ 2,361,178	\$ 200	\$ 2,361,378	\$ 1,260,095	\$ 1,056,137	\$ 45,145	\$ 1,875	\$ 43,270	98.17%
	Educational Assistants	\$ 2,751,027	\$ 2,965,151	\$ 60,477	\$ 3,025,628	\$ 1,470,474	\$ 1,414,754	\$ 140,400	\$ 10,000	\$ 130,400	95.69%
	Nurses & Medical Advisors	\$ 939,312	\$ 902,273	\$ 31,615	\$ 933,888	\$ 414,963	\$ 470,170	\$ 48,755	\$ 22,935	\$ 25,820	97.24%
	Custodial & Maint. Salaries	\$ 3,218,689	\$ 3,395,484	\$ (45,604)	\$ 3,349,880	\$ 1,826,348	\$ 1,429,873	\$ 93,660	\$ 25,030	\$ 68,630	97.95%
	Non-Certied Adj & Bus Drivers Salaries	\$ -	\$ 155,981	\$ (155,981)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	#DIV/0!
	Career/Job Salaries	\$ 122,065	\$ 171,116	\$ 4,257	\$ 175,373	\$ 77,963	\$ 111,745	\$ (14,335)	\$ (17,858)	\$ 3,523	97.99%
	Special Education Svcs Salaries	\$ 1,348,349	\$ 1,456,181	\$ 20,937	\$ 1,477,118	\$ 697,250	\$ 672,123	\$ 107,745	\$ (3,543)	\$ 111,288	92.47%
	Security Salaries & Attendance	\$ 684,773	\$ 679,888	\$ 293	\$ 680,181	\$ 340,659	\$ 275,344	\$ 64,177	\$ 13,839	\$ 50,338	92.60%
	Extra Work - Non-Cert.	\$ 119,364	\$ 109,770	\$ 4,500	\$ 114,270	\$ 66,413	\$ 450	\$ 47,407	\$ 45,014	\$ 2,392	97.91%
	Custodial & Maint. Overtime	\$ 356,554	\$ 236,000	\$ -	\$ 236,000	\$ 141,211	\$ -	\$ 94,789	\$ 97,173	\$ (2,384)	101.01%
	Civic Activities/Park & Rec.	\$ 27,857	\$ 32,000	\$ -	\$ 32,000	\$ 14,388	\$ -	\$ 17,612	\$ 17,612	\$ -	100.00%
	NON-CERTIFIED SALARIES	\$ 12,883,213	\$ 13,568,492	\$ (74,346)	\$ 13,494,146	\$ 6,861,163	\$ 5,830,939	\$ 802,044	\$ 275,603	\$ 526,441	96.10%
	SUBTOTAL SALARIES	\$ 51,681,024	\$ 53,701,233	\$ -	\$ 53,701,233	\$ 26,052,295	\$ 26,219,906	\$ 1,429,032	\$ 952,728	\$ 476,304	99.11%
200	EMPLOYEE BENEFITS										
	Medical & Dental Expenses	\$ 8,538,506	\$ 8,790,863	\$ -	\$ 8,790,863	\$ 6,599,735	\$ 2,160,835	\$ 30,293	\$ 18,168	\$ 12,125	99.86%
	Life Insurance	\$ 88,568	\$ 87,000	\$ -	\$ 87,000	\$ 51,844	\$ -	\$ 35,156	\$ 35,156	\$ -	100.00%
	FICA & Medicare	\$ 1,624,911	\$ 1,706,549	\$ -	\$ 1,706,549	\$ 840,889	\$ -	\$ 865,660	\$ 865,660	\$ -	100.00%
	Pensions	\$ 954,029	\$ 852,347	\$ -	\$ 852,347	\$ 771,592	\$ 500	\$ 80,255	\$ 105,000	\$ (24,745)	102.90%
	Unemployment & Employee Assist.	\$ 102,469	\$ 81,600	\$ -	\$ 81,600	\$ 25,600	\$ -	\$ 56,000	\$ 51,000	\$ 5,000	93.87%
	Workers Compensation	\$ 436,325	\$ 436,657	\$ (12,626)	\$ 424,031	\$ 323,420	\$ 100,554	\$ 57	\$ -	\$ 57	99.99%
	SUBTOTAL EMPLOYEE BENEFITS	\$ 11,744,808	\$ 11,955,016	\$ (12,626)	\$ 11,942,390	\$ 8,613,080	\$ 2,261,889	\$ 1,067,421	\$ 1,074,984	\$ (7,563)	100.06%

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300	PROFESSIONAL SERVICES										
	Professional Services	\$ 404,089	\$ 493,643	\$ -	\$ 493,643	\$ 161,980	\$ 72,516	\$ 259,147	\$ 259,147	\$ -	100.00%
	Professional Educational Serv.	\$ 138,998	\$ 193,498	\$ (14,000)	\$ 179,498	\$ 54,364	\$ 12,645	\$ 112,489	\$ 112,489	\$ -	100.00%
	SUBTOTAL PROFESSIONAL SERV.	\$ 543,087	\$ 687,141	\$ (14,000)	\$ 673,141	\$ 216,344	\$ 85,160	\$ 371,637	\$ 371,637	\$ -	100.00%
400	PURCHASED PROPERTY SERV.										
	Buildings & Grounds Contracted Svc.	\$ 672,697	\$ 683,600	\$ -	\$ 683,600	\$ 431,412	\$ 192,269	\$ 59,920	\$ 59,920	\$ -	100.00%
	Utility Services - Water & Sewer	\$ 160,597	\$ 144,770	\$ -	\$ 144,770	\$ 69,271	\$ -	\$ 75,499	\$ 59,999	\$ 15,500	89.29%
	Building, Site & Emergency Repairs	\$ 710,231	\$ 450,000	\$ -	\$ 450,000	\$ 175,522	\$ 55,171	\$ 219,307	\$ 221,503	\$ (2,196)	100.49%
	Equipment Repairs	\$ 289,596	\$ 269,051	\$ -	\$ 269,051	\$ 122,350	\$ 36,208	\$ 110,493	\$ 112,509	\$ (2,016)	100.75%
	Rentals - Building & Equipment	\$ 260,448	\$ 267,242	\$ -	\$ 267,242	\$ 116,920	\$ 97,156	\$ 53,167	\$ 53,908	\$ (742)	100.28%
	Building & Site Improvements	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-
	SUBTOTAL PUR. PROPERTY SERV.	\$ 2,093,569	\$ 1,814,663	\$ -	\$ 1,814,663	\$ 915,475	\$ 380,803	\$ 518,385	\$ 507,839	\$ 10,546	99.42%
500	OTHER PURCHASED SERVICES										
	Contracted Services	\$ 1,019,495	\$ 886,545	\$ 130,200	\$ 1,016,745	\$ 763,107	\$ 296,577	\$ (42,939)	\$ (12,703)	\$ (30,237)	102.97%
	Transportation Services	\$ 4,229,179	\$ 4,919,428	\$ (116,200)	\$ 4,803,228	\$ 2,496,724	\$ 1,724,632	\$ 581,872	\$ 410,872	\$ 171,000	96.44%
	Insurance - Property & Liability	\$ 425,660	\$ 422,766	\$ 12,626	\$ 435,392	\$ 318,303	\$ 122,339	\$ (5,250)	\$ -	\$ (5,250)	101.21%
	Communications	\$ 189,488	\$ 152,524	\$ -	\$ 152,524	\$ 100,119	\$ 58,145	\$ (5,740)	\$ 7,387	\$ (13,127)	108.61%
	Printing Services	\$ 19,859	\$ 24,789	\$ -	\$ 24,789	\$ 7,737	\$ 171	\$ 16,881	\$ 16,881	\$ -	100.00%
	Tuition - Out of District	\$ 3,252,787	\$ 3,450,187	\$ -	\$ 3,450,187	\$ 2,824,898	\$ 2,374,035	\$ (1,748,746)	\$ (1,298,899)	\$ (449,847)	113.04%
	Student Travel & Staff Mileage	\$ 190,540	\$ 239,087	\$ -	\$ 239,087	\$ 157,396	\$ 16,404	\$ 65,287	\$ 64,187	\$ 1,100	99.54%
	SUBTOTAL OTHER PURCHASED SERV.	\$ 9,327,010	\$ 10,095,326	\$ 26,626	\$ 10,121,952	\$ 6,668,282	\$ 4,592,304	\$ (1,138,635)	\$ (812,274)	\$ (326,361)	103.22%
600	SUPPLIES										
	Instructional & Library Supplies	\$ 799,649	\$ 854,242	\$ -	\$ 854,242	\$ 567,884	\$ 106,055	\$ 180,303	\$ 180,303	\$ -	100.00%
	Software, Medical & Office Supplies	\$ 217,455	\$ 194,940	\$ -	\$ 194,940	\$ 99,163	\$ 43,640	\$ 52,137	\$ 52,137	\$ -	100.00%
	Plant Supplies	\$ 423,279	\$ 366,100	\$ -	\$ 366,100	\$ 230,803	\$ 35,616	\$ 99,681	\$ 100,449	\$ (768)	100.21%
	Electric	\$ 995,294	\$ 1,022,812	\$ (93,500)	\$ 929,312	\$ 376,960	\$ -	\$ 552,352	\$ 407,352	\$ 145,000	84.40%
	Propane & Natural Gas	\$ 415,377	\$ 424,980	\$ 40,000	\$ 464,980	\$ 214,358	\$ -	\$ 250,622	\$ 269,622	\$ (19,000)	104.09%
	Fuel Oil	\$ 88,194	\$ 63,000	\$ 53,500	\$ 116,500	\$ 41,335	\$ -	\$ 75,165	\$ 75,165	\$ -	100.00%
	Fuel for Vehicles & Equip.	\$ 191,173	\$ 216,258	\$ -	\$ 216,258	\$ 100,849	\$ -	\$ 115,409	\$ 100,409	\$ 15,000	93.06%
	Textbooks	\$ 344,482	\$ 223,132	\$ -	\$ 223,132	\$ 110,981	\$ 15,793	\$ 96,357	\$ 96,357	\$ -	100.00%
	SUBTOTAL SUPPLIES	\$ 3,474,903	\$ 3,365,464	\$ -	\$ 3,365,464	\$ 1,742,333	\$ 201,104	\$ 1,422,027	\$ 1,281,795	\$ 140,232	95.83%

**NEWTOWN BOARD OF EDUCATION
2022-23 BUDGET SUMMARY REPORT
FOR THE MONTH ENDING JANUARY 31, 2023**

OBJECT CODE	EXPENSE CATEGORY	EXPENDED 2021 - 2022	2022 - 2023 APPROVED BUDGET	YTD TRANSFERS 2022 - 2023	CURRENT BUDGET	YTD EXPENDITURE	ENCUMBER	BALANCE	ANTICIPATED OBLIGATIONS	PROJECTED BALANCE	% EXP
700	PROPERTY										
	Technology Equipment	\$ 278,825	\$ 156,024	\$ -	\$ 156,024	\$ 40,736	\$ -	\$ 115,288	\$ 115,288	\$ -	100.00%
	Other Equipment	\$ 257,460	\$ 183,686	\$ -	\$ 183,686	\$ 35,129	\$ 9,799	\$ 138,758	\$ 138,758	\$ -	100.00%
	SUBTOTAL PROPERTY	\$ 536,285	\$ 339,710	\$ -	\$ 339,710	\$ 75,865	\$ 9,799	\$ 254,046	\$ 254,046	\$ -	100.00%
800	MISCELLANEOUS										
	Memberships	\$ 59,271	\$ 76,086	\$ -	\$ 76,086	\$ 62,837	\$ 3,268	\$ 9,981	\$ 9,981	\$ -	100.00%
	SUBTOTAL MISCELLANEOUS	\$ 59,271	\$ 76,086	\$ -	\$ 76,086	\$ 62,837	\$ 3,268	\$ 9,981	\$ 9,981	\$ -	100.00%
910	SPECIAL ED CONTINGENCY	\$ -	\$ 100,000	\$ -	\$ 100,000	\$ -	\$ -	\$ 100,000	\$ -	\$ 100,000	0.00%
TOTAL LOCAL BUDGET		\$ 79,459,957	\$ 82,134,639	\$ -	\$ 82,134,639	\$ 44,346,511	\$ 33,754,233	\$ 4,033,895	\$ 3,640,736	\$ 393,158	99.52%
900	Transfer to Non-Lapsing	\$ 237,741									
GRAND TOTAL		\$ 79,697,698	\$ 82,134,639	\$ -	\$ 82,134,639	\$ 44,346,511	\$ 33,754,233	\$ 4,033,895	\$ 3,640,736	\$ 393,158	99.52%

SPECIAL REVENUES

EXCESS COST GRANT REVENUE	EXPENDED 2021-2022	APPROVED BUDGET	STATE PROJECTED 1-Jan	PROJECTED 1-Mar	ESTIMATED Total	VARIANCE to Budget	FEB DEPOSIT	MAY DEPOSIT	% TO BUDGET
51266 Special Education Svcs Salaries ECG	\$ (7,170)		\$ (7,843)		\$ (7,843)	\$ 7,843			#DIV/0!
54116 Transportation Services - ECG	\$ (333,218)	\$ (320,028)	\$ (469,245)		\$ (469,245)	\$ 149,217			146.63%
54160 Tuition - Out of District ECG	\$ (1,193,144)	\$ (1,300,484)	\$ (1,348,899)		\$ (1,348,899)	\$ 48,415			103.72%
Total	\$ (1,533,532)	\$ (1,620,512)	\$ (1,825,987)	\$ -	\$ (1,825,987)	\$ 205,475	\$ -	\$ -	112.68%
							Total*	\$ -	

SDE MAGNET TRANSPORTATION GRANT

	\$ (9,100)	\$ (13,000)	\$ (11,700)	\$ (11,700)	\$ (1,300)	90.00%
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OTHER REVENUES

BOARD OF EDUCATION FEES & CHARGES - SERVICES

	APPROVED BUDGET	ANTICIPATED	RECEIVED	BALANCE	% RECEIVED
LOCAL TUITION	\$32,430	\$32,430	\$23,800	\$8,630	73.39%
HIGH SCHOOL FEES FOR PARKING PERMITS	\$30,000	\$30,000		\$30,000	0.00%
MISCELLANEOUS FEES	\$6,000	\$6,000	\$14,840	(\$8,840)	247.34%
TOTAL SCHOOL GENERATED FEES	\$68,430	\$68,430	\$38,640	\$29,790	56.47%

OTHER GRANTS

	TOTAL BUDGET	21-22 EXPENSED	YTD EXPENSE	ENCUMBER	BALANCE	% EXPENSED
214 ESSER II	\$625,532	\$573,735	\$16,243		\$35,554	94.32%
218 ESSER III (estimated \$809k for 21-22 use)	\$1,253,726	\$709,840	\$220,557	\$291,642	\$31,688	97.47%

2022 - 2023
NEWTOWN BOARD OF EDUCATION
TRANSFERS RECOMMENDED
JANUARY 31, 2023

AMOUNT	FROM		TO		REASON
	CODE	DESCRIPTION	CODE	DESCRIPTION	
ADMINISTRATIVE					
\$12,875	100	EDUCATIONAL ASSISTANTS	200	PENSIONS	TO PROVIDE PROJECTED FUNDS NEEDED FOR THE PENSION PLANS
\$12,125	200	MEDICAL & DENTAL EXPENSES			
\$25,000					
\$23,554	500	TRANSPORTATION SERVICES	500	CONTRACTED SERVICES	TO COVER COST OF THE STRATEGIC PLAN AND CONSULTING SERVICES
\$48,554	TOTAL TRASNFRS REQUESTED				

2022 - 2023
NEWTOWN BOARD OF EDUCATION
DETAIL OF TRANSFERS RECOMMENDED
JANUARY 31, 2023

		FROM			TO		
OBJECT CODE	AMOUNT		OBJECT CODE	AMOUNT			
100	\$12,875	EDUCATIONAL ASSISTANTS \$12,875 001750630000 - 51232 SP ED - H.S. SP. ED.	200	\$25,000	PENSIONS \$25,000 001860900000 - 52500 DISTRICT - BENEFITS	ED ASSISTANTS PENSION PLANS	
200	\$12,125	MEDICAL & DENTAL EXPENSES \$12,125 001860900000 - 52000 DISTRICT - BENEFITS				PERSONNEL INSURANCE	
500	\$23,554	TRANSPORTATION SERVICES \$23,554 001920870000 - 54110 DISTRICT - TRANSPORT	500	\$23,554	CONTRACTED SERVICES \$23,554 001840830000 - 54000 DISTRICT - BOE	TRANS. - LOCAL REG. ED. CONTRACTED SERVICES	
	\$48,554	TOTAL TRANSFER REQUEST		\$48,554	TOTAL TRANSFER REQUEST		

Newtown Public Schools Dining

September/October 2022

Dining Configuration and Opening

- **Sono Station Concept** – Our most popular concept features made to order Burritos. Taco and Burrito bowls are made fresh at the students request with Tortillas or tortilla chips with a choice of Taco Beef or Chicken w/rice and a toppings selection of Diced Tomatoes, Diced Onions, Shredded Lettuce, Olives, Jalapenos, Salsa, Black Beans, Sour Cream, Shredded Cheddar & Guacamole.
- **So Deli** – This station features freshly sliced Boars Head meats and cheeses with some special choices like roasted buffalo chicken or chipotle chicken breast. The topping selection features Sliced Tomatoes, Sliced Onions, Banana Peppers, Jalapenos, Shredded Lettuce & House made Pickles. The sauces are Ranch, Honey Mustard, Mustard, Mayonnaise, Balsamic Vinaigrette & Hot Sauce. These are served on either whole grain rolls or wraps. Also available at the deli are grilled gluten free wraps that accommodate the students that are gluten free.
- **2 mato** – Freshly Baked pizzas are prepared each day with four choices. Including the standard Cheese - Cheese and Pepperoni.
- Fresh Rotisserie Chicken is prepared daily at NHS.
- Freshly made in house pickles are quite a favorite especially at the So Deli Station.



November 2022

- **Night Hawk Express** – The Nighthawk Express room was setup in October and opened on November 3rd to provide students an innovative and exciting opportunity to access some snacks and nutritional items that is adjacent to the dining area. This room features Whole Grain mozzarella stuffed bread twists, pizza crunchers, miniature corn dogs in heated display cases where the homemade soups are. In the air screen area, there are freshly made yogurt and fruit parfaits, fruit salads and many drink selections. Ice Cream treats are a popular selection also.



December 2022

- **Soup Program** – We Featured 4 soups with a tasting in the Cafeteria that students could sample and vote on, this allowed us to create student favorites Broccoli Cheddar, Rotisserie Chicken Taco, Chicken Noodle & Tomato. These soups are made from prepared in-house stocks where the chefs use fresh vegetables and the bones from Rotisserie Chickens. Both chicken and vegetable stocks are made to produce authentic and full-flavored soups.

December 2022

- **Mac & Cheesyology** - is a student favorite served at the American Classic station which provides students with Baked Macaroni and Cheese with choices of Buffalo Chicken, Oven baked Taco Beef, Sautéed Onions & Peppers, and Steamed Broccoli for toppings.

January – February 2023

- **Student Choice** – This concept is in three choices which students can sample and vote through an online portal or hyper link. Once the votes are tallied – the winner will be come part of the high school menu. The first sampling was the first week of February and featured a Quinoa bowl with rice, diced squash, garbanzo beans, Chopped Kale, and Soy Lime Dressing.

MOOD BOOST

Starting the second week of January 2022 students in the elementary schools are having the opportunity to experience a program called “Mood Boost”. This is designed to help students make the connection between what they eat and how they feel, Mood Boost brings new lunch menus, fun activities and a collection of characters called “Moodie’s” into the cafeteria.

*Emerging research has shown that the foods we eat the most often may have an effect on how we feel, not just physically, but mentally. When eaten regularly Mood Boost foods, especially nutrient rich fruit and vegetables can help to elevate a person’s mood and enhance their sense of well-being. These foods contain vitamins, minerals and antioxidants that communicate with our brain to support personal characteristics such as happy, alert, strong, calm and confident. This is the foundation for Mood Boost!
This is quite a success as the students are enjoying both the nutritious food and the fun swag.*

Mood Boost Schedule

- 1/10 - 1/12 Week 1 Strong: **Apple, Beet, Carrot, Citrus Mint Vinaigrette - MG, SH, HOM**
 1/16 – 1/19 Week 2 Happy: **Red Cabbage, Pineapple, Apple salad – MG, SH, HOM**
 1/23 – 1/26 Week 3 Alert: **Fresh Cantaloupe, Honeydew, Pineapple and Watermelon – MG, SH, HOM**
 2/06 – 2/10 Week 4 Confident: **Fresh Kiwi Slices MG, SH, HOM**
 2/13 – 2/17 Week 5 Calm: **Broccoli and Raisin Salad – MG, SH, HOM**
 2/20 – 2/24 Week 6 Smart: **Mashed Sweet Potatoes – MG, SH, HOM**

Reed / Hawley and NMS Mood Boost Schedule

- 3/03 Week 1 Strong: **Apple, Beet, Carrot, Citrus Mint Vinaigrette**
 3/10 Week 2 Happy: **Red Cabbage, Pineapple, Apple salad**
 3/17 Week 3 Alert: **Fresh Cantaloupe, Honeydew, Pineapple and Watermelon**
 3/24 Week 4 Confident: **Fresh Kiwi Slices**
 3/31 Week 5 Calm: **Broccoli and Raisin Salad**
 4/07 Week 6 Smart: **Mashed Sweet Potatoes**

Marketing Environment

The marketing has been completed in all the schools in District – please see photos of completion.



Upcoming:

Global Eats –

With the many different Cultures that are in the Newtown district including both students and staff we are presenting the Global Eats Concept which will allow us to provide a cultural and diverse station to not only share some cuisine from different culinary venues but also provide educational backgrounds and the history associated with the culture food being served.

The students will have the opportunity also to bring some ideas for future cuisine.



Unit Planner: Kinematics Honors Physics

Monday, January 3, 2023, 10:02AM

Newtown High School / 2022-2023 / Grade 11 / Science / Honors Physics Last Updated: Tuesday, November 2, 2021 by
/ Week 1 - Week 5 Kim Lowell

Kinematics

Canfield, Christian; Dyer, Michael; Lowell, Kim; Smith, Timothy; Torrance, Melissa

- [Unit Planner](#)
- [Lesson Planner](#)

Concept-Based Unit Development Graphic Organizer (Download)

[Unit Web Template \(Optional\)](#)

Concepts / Conceptual Lens

Please attach your completed Unit Web Template here

Motion

Concepts: kinematics, rates, vector, projectiles, graphical analysis

G

Generalizations / Enduring Understandings

1. Graphical analysis or kinematic equations illustrate motion.
2. Time rates of change convey the motion of an object.
3. The independent and different nature of vertical and horizontal components of motion contribute to the parabolic path of a projectile.
4. Vector quantities have both magnitude and direction.

Guiding Questions

Please identify the type of question: (F) Factual, (C) Conceptual, (P) Provocative [Debatable]

1.

What is slope? (F)

What is the difference between distance and displacement? (C)

How is velocity and acceleration determined from a position-time graph? (C)

How is acceleration and position determined from a velocity-time graph? (C)

How do the characteristics of motion, position, velocity, acceleration, and time, relate to each other for motion in a given direction? (C)

2.

What is speed? (F)

What is velocity? (F)

What is acceleration? (F)

How are speed and velocity different? How are they the same? (C)

How is the motion of objects predicted and/or explained? (C)

3.

What is a vector? (F)

What is a scalar? (F)

How do vector and scalar quantities differ from each other, and in what ways do calculations with each quantity differ from each other? (C)

How do vectors help in describing motion in more than just one direction? (C)

What effect does gravity have on vertical motion? (C)

If there is no air resistance, how and why would it be dangerous to go outdoors on a rainy days? (C)

Is the layman term for free fall accurate for the physics definition? (P)

Which is more important, vectors or scalars? (P)

Standard(s)

Connecticut Core Standards / Content Standards

CCSS: Literacy in History/Social Studies, Science, & Technical Subjects 6-12

CCSS: Grades 11-12

Reading: Science & Technical Subjects

3. Analyze how and why individuals, events, or ideas develop and interact over the course of a text.

RST.11-12.3. Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.

Integration of Knowledge and Ideas

7. Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.

RST.11-12.7. Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.

Writing

Text Types and Purposes

1. Write arguments to support claims in an analysis of substantive topics or texts using valid reasoning and relevant and sufficient evidence.

WHST.11-12.1. Write arguments focused on discipline-specific content.

WHST.11-12.1e. Provide a concluding statement or section that follows from or supports the argument presented.

NGSS: Science and Engineering Practices

NGSS: 9-12

Practice 1. Asking questions (for science) and defining problems (for engineering)

Asking questions and defining problems in 9–12 builds on K–8 experiences and progresses to formulating, refining, and evaluating empirically testable questions and design problems using models and simulations.

Ask questions that arise from careful observation of phenomena, or unexpected results, to clarify and/or seek additional information.

Ask questions that arise from examining models or a theory, to clarify and/or seek additional information and relationships.

Ask questions to determine relationships, including quantitative relationships, between independent and dependent variables.

Ask questions to clarify and refine a model, an explanation, or an engineering problem.

Evaluate a question to determine if it is testable and relevant.

Ask questions that can be investigated within the scope of the school laboratory, research facilities, or field (e.g., outdoor environment) with available resources and, when appropriate, frame a hypothesis based on a model or theory.

Ask and/or evaluate questions that challenge the premise(s) of an argument, the interpretation of a data set, or the suitability of a design.

Practice 2. Developing and using models

Modeling in 9–12 builds on K–8 experiences and progresses to using, synthesizing, and developing models to predict and show relationships among variables between systems and their components in the natural and designed worlds.

Design a test of a model to ascertain its reliability.

Develop, revise, and/or use a model based on evidence to illustrate and/or predict the relationships between systems or between components of a system.

Develop and/or use multiple types of models to provide mechanistic accounts and/or predict phenomena, and move flexibly between model types based on merits and limitations.

Develop and/or use a model (including mathematical and computational) to generate data to support explanations, predict phenomena, analyze systems, and/or solve problems.

Practice 3. Planning and carrying out investigations

Planning and carrying out investigations in 9-12 builds on K-8 experiences and progresses to include investigations that provide evidence for and test conceptual, mathematical, physical, and empirical models.

Plan an investigation or test a design individually and collaboratively to produce data to serve as the basis for evidence as part of building and revising models, supporting explanations for phenomena, or testing solutions to problems. Consider possible confounding variables or effects and evaluate the investigation's design to ensure variables are controlled.

Plan and conduct an investigation individually and collaboratively to produce data to serve as the basis for evidence, and in the design: decide on types, how much, and accuracy of data needed to produce reliable measurements and consider limitations on the precision of the data (e.g., number of trials, cost, risk, time), and refine the design accordingly.

Select appropriate tools to collect, record, analyze, and evaluate data.

Make directional hypotheses that specify what happens to a dependent variable when an independent variable is manipulated.

Practice 4. Analyzing and interpreting data

Analyzing data in 9–12 builds on K–8 experiences and progresses to introducing more detailed statistical analysis, the comparison of data sets for consistency, and the use of models to generate and analyze data.

Analyze data using tools, technologies, and/or models (e.g., computational, mathematical) in order to make valid and reliable scientific claims or determine an optimal design solution.

Apply concepts of statistics and probability (including determining function fits to data, slope, intercept, and correlation coefficient for linear fits) to scientific and engineering questions and problems, using digital tools when feasible.

Consider limitations of data analysis (e.g., measurement error, sample selection) when analyzing and interpreting data.

Evaluate the impact of new data on a working explanation and/or model of a proposed process or system.

Practice 5. Using mathematics and computational thinking

Mathematical and computational thinking in 9–12 builds on K–8 experiences and progresses to using algebraic thinking and analysis, a range of linear and nonlinear functions including trigonometric functions, exponentials and logarithms, and computational tools for statistical analysis to analyze, represent, and model data. Simple computational simulations are created and used based on mathematical models of basic assumptions.

Use mathematical, computational, and/or algorithmic representations of phenomena or design solutions to describe and/or support claims and/or explanations.

Apply techniques of algebra and functions to represent and solve scientific and engineering problems.

Apply ratios, rates, percentages, and unit conversions in the context of complicated measurement problems involving quantities with derived or compound units (such as mg/mL, kg/m³, acre-feet, etc.).

Practice 6. Constructing explanations (for science) and designing solutions (for engineering)

Constructing explanations and designing solutions in 9–12 builds on K–8 experiences and progresses to explanations and designs that are supported by multiple and independent student-generated sources of evidence consistent with scientific ideas, principles, and theories.

Make a quantitative and/or qualitative claim regarding the relationship between dependent and independent variables.

Construct and revise an explanation based on valid and reliable evidence obtained from a variety of sources (including students' own investigations, models, theories, simulations, peer review) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future.

Apply scientific ideas, principles, and/or evidence to provide an explanation of phenomena and solve design problems, taking into account possible unanticipated effects.

Apply scientific reasoning, theory, and/or models to link evidence to the claims to assess the extent to which the reasoning and data support the explanation or conclusion.

Practice 7. Engaging in argument from evidence

Engaging in argument from evidence in 9–12 builds on K–8 experiences and progresses to using appropriate and sufficient evidence and scientific reasoning to defend and critique claims and explanations about the natural and designed world(s). Arguments may also come from current scientific or historical episodes in science.

Construct, use, and/or present an oral and written argument or counter-arguments based on data and evidence.

NGSS: Crosscutting Concepts

NGSS: 9-12

Crosscutting Statements

1. Patterns – Observed patterns in nature guide organization and classification and prompt questions about relationships and causes underlying them.

Mathematical representations are needed to identify some patterns.

4. Systems and System Models – A system is an organized group of related objects or components; models can be used for understanding and predicting the behavior of systems.

When investigating or describing a system, the boundaries and initial conditions of the system need to be defined and their inputs and outputs analyzed and described using models.

Models (e.g., physical, mathematical, computer models) can be used to simulate systems and interactions—including energy, matter, and information flows—within and between systems at different scales.

Models can be used to predict the behavior of a system, but these predictions have limited precision and reliability due to the assumptions and approximations inherent in models.

7. Stability and Change – For both designed and natural systems, conditions that affect stability and factors that control rates of change are critical elements to consider and understand.

Much of science deals with constructing explanations of how things change and how they remain stable.

Change and rates of change can be quantified and modeled over very short or very long periods of time. Some system changes are irreversible.

CT: Science Framework (2005)

CT: Grades 9-12

I. Inquiry

SCIENTIFIC INQUIRY • Scientific inquiry is a thoughtful and coordinated attempt to search out, describe, explain and predict natural phenomena. • Scientific inquiry progresses through a continuous process of questioning, data collection, analysis and interpretation. • Scientific inquiry requires the sharing of findings and ideas for critical review by colleagues and other scientists. SCIENTIFIC LITERACY • Scientific literacy includes the ability to read, write, discuss and present coherent ideas about science. • Scientific literacy also includes the ability to search for and assess the relevance and credibility of scientific information found in various print and electronic media. SCIENTIFIC NUMERACY • Scientific numeracy includes the ability to use mathematical operations and procedures to calculate, analyze and present scientific data and ideas.

D INQ10. Communicate about science in different formats, using relevant science vocabulary, supporting evidence and clear logic.

D INQ6. Use appropriate tools and techniques to make observations and gather data.

D INQ7. Assess the reliability of the data that was generated in the investigation.

D INQ8. Use mathematical operations to analyze and interpret data, and present relationships between variables in appropriate forms.

D INQ.9 Articulate conclusions and explanations based on research data, and assess results based on the design of the investigation.

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Critical Content & Skills

What students must KNOW and be able to DO

Students must know-

Displacement, Distance, Speed, Velocity, Acceleration, Vector, Scalar, free fall, range, projectile motion,

instantaneous, average, resultant vector, vector components

Students must be able to-

- justify the selection of a mathematical routine to solve problems.
- apply mathematical routines to quantities that describe natural phenomena.
- design a plan for collecting data to answer a particular scientific question.
- analyze data to identify patterns or relationships.
- use representations and models to analyze situations or solve problems qualitatively and quantitatively

- analyze data using tools, technologies, and/or models (e.g., computational, mathematical) in order to make valid and reliable scientific claims or determine an optimal design solution.

- develop and/or use a model to generate data to support explanations, analyze systems, or solve problems.

Core Learning Activities

- Motion Detector Lab (<https://www.cbsd.org/cms/lib/P...>)
- Alternate Online Virtual Motion Detector Lab (<http://ngsir.netfirms.com/englishhtm/Kinematics.htm>)
- Alternate Online Virtual Motion Detector Lab (<http://www.mste.uiuc.edu/murphy/MovingMan/MovingMan.html>)
- Projectile Motion Lab (<https://www.cbsd.org/cms/lib/P...>)
- Alternate Online Virtual Projectile Motion Lab (<https://phet.colorado.edu/en/simulation/legacy/projectile-motion>)

Suggested Activities

- "Picket Fence" Laboratory (<https://www.mustangps.org/Down...>)
- Galileo Incline Lab ([https://sites.google.com/site/...](https://sites.google.com/site/))
- Vector Treasure Hunt Activity (<http://thephysicsaviary.com/Ph...>)
- Alternate Online Virtual Vector Lab (<https://phet.colorado.edu/en/simulation/vector-addition>)

Assessments

Motion Detector Lab

Formative: Lab Assignment

Students move to match the graphs of different motion characteristics as a function of time. Student motion is captured and reproduced using motion detectors.

[Motion Detector Lab.docx](#)

Free Fall Lab

Formative: Lab Assignment

Student will analyze free fall motion moving through six different stations.

[Free Fall Lab- Stations.docx](#)

Test on 1-D Motion

Summative: Written Test

This is the summative assessment for 1-D Motion

[test 1415.doc](#)

Vector Map Lab

Resources

Professional & Student

Professional

- Giancoli, Douglas C. *Physics: Principles with Applications*. 5th ed. Upper Saddle River, NJ: Prentice Hall, 1998. Print. Teacher Edition.

Student

- Giancoli, Douglas C. *Physics: Principles with Applications*. 5th ed. Upper Saddle River, NJ: Prentice Hall, 1998. Print. Student Edition.
- <http://www.physicsclassroom.com> Basic background information on concepts in physics.

<p>Formative: Lab Assignment Students will use vectors mathematically and graphically to find locations on a map/ <u>vector map lab.doc</u></p> <p>Projectile Lab Formative: Lab Assignment Students will predict the range of a projectile launcher. <u>Projectile Lab.doc</u></p> <p>Projectile Motion Test Summative: Written Test Summative test on projectile motion and vectors.</p>	<ul style="list-style-type: none"> • Colorado PhET (https://phet.colorado.edu/)
<p>Student Learning Expectation & 21st Century Skills <u>Information Literacy</u> <u>Critical Thinking</u> <u>Spoken Communication</u> <u>Written Performance</u></p>	<p>Interdisciplinary Connections</p> <p>Students review and apply techniques learned in previous mathematics coursework on rates, algebraic rearrangement, and trigonometric functions.</p>



Unit Planner: Forces Honors Physics

Monday, January 11, 2022 10:42 AM

Newtown High School / 2022-2023 / Grade 11 / Science / Honors Physics / Last Updated: Friday, January 14, 2022 by
Week 6 - Week 11 Kim Lowell

Forces

Canfield, Christian; Dyer, Michael; Lowell, Kim; Smith, Timothy; Torrance, Melissa

- [Unit Planner](#)
- [Lesson Planner](#)

Concept-Based Unit Development Graphic Organizer (Download)

Unit Web Template (Optional)

Concepts / Conceptual Lens

Please attach your completed Unit Web Template here

Interaction

Concepts- Newton's laws, inertia, net force, equilibrium, weight, mass, centripetal, gravitational field

G

Generalizations / Enduring Understandings

1. Newton's three laws predict changes in motion.
2. Centripetal forces produce circular motion.
3. Objects with mass create a gravitational field.
4. Mass is a measure of the inertia of a body.
5. A new force produces an acceleration, an object in equilibrium experiences no acceleration.
6. Weight is dependent upon the position of a mass within a gravitational field.

Guiding Questions

Please identify the type of question: (F) Factual, (C) Conceptual, (P) Provocative [Debatable]

1. What are Newton's Three Laws? (F)
What are the types of friction? (F)
What is normal force? (F)
How must normal force be drawn? (F)
How are forces physically/pictorially represented? (F)
How is a net force on an object determined? (C)
How can any side of a tug of war win if Newton's 3rd law is true? (C)
How is force related to changes in motions of objects? (C)
How can variables be manipulated to affect the movement of objects? (C)
How are various applications such as inclines and elevators represented with Newton's laws, force diagrams, and motion diagrams? (C)
Why does the same push change the motion of a

shopping cart more than the motion of a car? (C)

Can an athlete improve their performance using one of Newton's three laws of motion? (P)

2.

What is centripetal acceleration? (F)

How does centripetal acceleration depend upon the object's speed and the radius of the circle? (F)

Why is an object moving in a circle at a constant speed accelerated? (C)

What force causes centripetal acceleration? (C)

How is circular motion like and unlike linear motion? (C)

3.

What is the universal law of gravitation? (F)

What is a gravitational field? (F)

What is a field force? (F)

What is the difference between a field force and a contact force? (F)

How does Kepler's law relate to the law of universal gravitation? (C)

How can the speed of a satellite change? (C)

How does gravity affect the motion of planets and satellites? (C)

Why is the acceleration due to gravity constant on Earth's surface? (C)

Based on the law of gravity should the US create a colony on the moon? (P)

Standard(s)

Connecticut Core Standards / Content Standards

CCSS: Literacy in History/Social Studies, Science, & Technical Subjects 6-12

CCSS: Grades 11-12

Reading: Science & Technical Subjects

3. Analyze how and why individuals, events, or ideas develop and interact over the course of a text.

RST.11-12.3. Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.

Integration of Knowledge and Ideas

7. Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.

RST.11-12.7. Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.

Writing

Text Types and Purposes

1. Write arguments to support claims in an analysis of substantive topics or texts using valid reasoning and relevant and sufficient evidence.

WHST.11-12.1. Write arguments focused on discipline-specific content.

WHST.11-12.1a. Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences the claim(s), counterclaims, reasons, and evidence.

WHST.11-12.1e. Provide a concluding statement or section that follows from or supports the argument presented.

NGSS: Science Performance Expectations (2013)

NGSS: HS Physical Sciences

HS.Forces and Interactions

Performance Expectations

HS-PS2-1. Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

HS-PS2-4. Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.

NGSS: Science and Engineering Practices

NGSS: 9-12

Practice 3. Planning and carrying out investigations

Planning and carrying out investigations in 9-12 builds on K-8 experiences and progresses to include investigations that provide evidence for and test conceptual, mathematical, physical, and empirical models.

Plan and conduct an investigation individually and collaboratively to produce data to serve as the basis for evidence, and in the design: decide on types, how much, and accuracy of data needed to produce reliable measurements and consider limitations on the precision of the data (e.g., number of trials, cost, risk, time), and refine the design accordingly.

Select appropriate tools to collect, record, analyze, and evaluate data.

Manipulate variables and collect data about a complex model of a proposed process or system to identify failure points or improve performance relative to criteria for success or other variables.

Practice 4. Analyzing and interpreting data

Analyzing data in 9–12 builds on K–8 experiences and progresses to introducing more detailed statistical analysis, the comparison of data sets for consistency, and the use of models to generate and analyze data.

Analyze data using tools, technologies, and/or models (e.g., computational, mathematical) in order to make valid and reliable scientific claims or determine an optimal design solution.

Apply concepts of statistics and probability (including determining function fits to data, slope, intercept, and correlation coefficient for linear fits) to scientific and engineering questions and problems, using digital tools when feasible.

Consider limitations of data analysis (e.g., measurement error, sample selection) when analyzing and interpreting data.

Practice 5. Using mathematics and computational thinking

Mathematical and computational thinking in 9-12 builds on K-8 experiences and progresses to using algebraic thinking and analysis, a range of linear and nonlinear functions including trigonometric functions, exponentials and logarithms, and computational tools for statistical analysis to analyze, represent, and model data. Simple computational simulations are created and used based on mathematical models of basic assumptions.

Use mathematical, computational, and/or algorithmic representations of phenomena or design solutions to describe and/or support claims and/or explanations.

Apply techniques of algebra and functions to represent and solve scientific and engineering problems.

Apply ratios, rates, percentages, and unit conversions in the context of complicated measurement problems involving quantities with derived or compound units (such as mg/mL, kg/m³, acre-feet, etc.).

Practice 6. Constructing explanations (for science) and designing solutions (for engineering)

Constructing explanations and designing solutions in 9–12 builds on K–8 experiences and progresses to explanations and designs that are supported by multiple and independent student-generated sources of evidence consistent with scientific ideas, principles, and theories.

Make a quantitative and/or qualitative claim regarding the relationship between dependent and independent variables.

Construct and revise an explanation based on valid and reliable evidence obtained from a variety of sources (including students' own investigations, models, theories, simulations, peer review) and the assumption that theories and laws

that describe the natural world operate today as they did in the past and will continue to do so in the future.

Apply scientific ideas, principles, and/or evidence to provide an explanation of phenomena and solve design problems, taking into account possible unanticipated effects.

CT: Science Framework (2005)

CT: Grades 9-12

I. Inquiry

SCIENTIFIC INQUIRY • Scientific inquiry is a thoughtful and coordinated attempt to search out, describe, explain and predict natural phenomena. • Scientific inquiry progresses through a continuous process of questioning, data collection, analysis and interpretation. • Scientific inquiry requires the sharing of findings and ideas for critical review by colleagues and other scientists. **SCIENTIFIC LITERACY** • Scientific literacy includes the ability to read, write, discuss and present coherent ideas about science. • Scientific literacy also includes the ability to search for and assess the relevance and credibility of scientific information found in various print and electronic media. **SCIENTIFIC NUMERACY** • Scientific numeracy includes the ability to use mathematical operations and procedures to calculate, analyze and present scientific data and ideas.

D INQ1. Identify questions that can be answered through scientific investigation.

D INQ10. Communicate about science in different formats, using relevant science vocabulary, supporting evidence and clear logic.

D INQ3. Formulate a testable hypothesis and demonstrate logical connections between the scientific concepts guiding the hypothesis and the design of the experiment.

D INQ4. Design and conduct appropriate types of scientific investigations to answer different questions.

D INQ6. Use appropriate tools and techniques to make observations and gather data.

D INQ7. Assess the reliability of the data that was generated in the investigation.

D INQ8. Use mathematical operations to analyze and interpret data, and present relationships between variables in appropriate forms.

D INQ.9 Articulate conclusions and explanations based on research data, and assess results based on the design of the investigation.

High School Physics

Motion and Forces Newton's laws predict the motion of most objects

When forces are balanced, no acceleration occurs; thus an object continues to move at a constant speed or stays at rest.

The law $F = ma$ is used to solve motion problems that involve constant forces.

When one object exerts a force on a second object, the second object always exerts a force of equal magnitude and in the opposite direction.

Applying a force to an object perpendicular to the direction of its motion causes the object to change direction.

Circular motion requires the application of a constant force directed toward the center of the circle.

Newton's laws are not exact but provide very good approximations unless an object is small enough that quantum effects become important.

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Critical Content & Skills

What students must KNOW and be able to DO

Students must know-

force, Newton's Laws, net force, inertia, friction, mass, weight, gravitational force, normal force, tension, coefficient of friction, equilibrium, free body diagrams, centripetal force, centripetal acceleration, frequency, period,

weightlessness, gravity, orbital speed, gravitational field, Newton's law of universal gravitation

Students must be able to-

- justify the selection of a mathematical routine to solve problems.
- apply mathematical routines to quantities that describe natural phenomena.
- design a plan for collecting data to answer a particular scientific question.
- analyze data to identify patterns or relationships.
- use representations and models to analyze situations or solve problems qualitatively and quantitatively

- analyze data using tools, technologies, and/or models (e.g., computational, mathematical) in order to make valid and reliable scientific claims or determine an optimal design solution.

- develop and/or use a model to generate data to support explanations, analyze systems, or solve problems.

Core Learning Activities

Core Activities

- Modified Atwood's Machine Laboratory

<https://www.cerritos.edu/cmera...>

- Alternate Online Virtual Force Lab

<https://phet.colorado.edu/en/simulation/legacy/the-ramp>

- Centripetal Force Lab

<http://www.batesville.k12.in.u...>

- Alternate Online Virtual Centripetal Force Lab

<https://www.physicsclassroom.com/Physics-Interactives/Circular-and-Satellite-Motion/Uniform-Circular-Motion/Uniform-Circular-Motion-Interactive>

Suggested Activities

- Newton's Third Law Activity
 - <https://www.physicsclassroom.c...>
- "Newton's Laws" Video
 - <http://p2cdn4static.sharpschoo...>
- Friction Laboratory
 - <http://www.umsl.edu/~physics/f...>

Assessments

Atwood Lab

Formative: Lab Assignment



[Atwood Lab.doc](#)

Centripetal Force Lab

Formative: Lab Assignment



[Centripetal Force Lab.doc](#)

Force Test

Summative: Written Test



[~\\$st 1415.doc](#)

Centripetal Force Test

Summative: Written Test



[test 1415a.doc](#)



[Atwood Lab.doc](#)

Resources

Professional & Student

Professional

- Giancoli, Douglas C. *Physics: Principles with Applications*. 5th ed. Upper Saddle River, NJ: Prentice Hall, 1998. Print. Teacher Edition.

Student

- Giancoli, Douglas C. *Physics: Principles with Applications*. 5th ed. Upper Saddle River, NJ: Prentice Hall, 1998. Print. Student Edition.
- <http://www.physicsclassroom.com> **Basic** background information on concepts in physics.
- Colorado PhET (<https://phet.colorado.edu/>)

Student Learning Expectation & 21st Century Skills

[Information Literacy](#)

[Critical Thinking](#)

[Spoken Communication](#)

[Written Performance](#)

Interdisciplinary Connections

Connections can be made to social studies. Teachers can look and see how history affected what scientists thought of how the planets in the universe move.



Unit Planner: Momentum and Energy

Honors Physics

Standard Version 5.01 to 5.03 1/11

Newtown High School / 2022-2023 / Grade 11 / Science / Honors Physics /
Week 12 - Week 17

Last Updated: Friday, January 14, 2022 by
Kim Lowell

Momentum and Energy

Canfield, Christian; Dyer, Michael; Lowell, Kim; Smith, Timothy; Torrance, Melissa

- [Unit Planner](#)
- [Lesson Planner](#)

Concept-Based Unit Development Graphic Organizer (Download)

Unit Web Template (Optional)

Concepts / Conceptual Lens

Please attach your completed Unit Web Template here

Conservation

Concepts- Momentum, Impulse, energy, collisions, law of conservation

G

Generalizations / Enduring Understandings

1. The action of forces transfer energy and momentum.
2. The law of conservation of energy governs all energy transfers.
3. The law of conservation of momentum determines the results of a collision.
4. An impulse applied to a system results in a change in momentum.

Guiding Questions

Please identify the type of question: (F) Factual, (C) Conceptual, (P) Provocative [Debatable]

1.

What is work? (F)

How is power calculated? (F)

What is a closed system? (F)

What is the relationship between work and energy? (C)

How is energy created by a force? (C)

How is the energy stored or work done influenced by the choice of system? (C)

Based on impulse and force, should trampolines be banned? (P)

2.

What is kinetic energy? (F)

What is potential energy? (F)

In what way is energy conserved? (C)

How is energy transferred from one object to another?
(C)

Based on energy conservation, is it better to sit in the front or the back of a rollercoaster? (P)

3.

What is momentum? (F)

Under what conditions is momentum conserved? (F)

How does Newton's third law relate to the law of conservation of momentum? (C)

How is momentum used to determine fault in car crashes? (C)

Is the layman definition of momentum accurate for the physics definition? (P)

4.

What is impulse? (F)

How can impulse change the momentum of an object or system? (C)

How can a baseball player improve their swing to hit more homeruns? (P)

Standard(s)

Connecticut Core Standards / Content Standards

CCSS: Literacy in History/Social Studies, Science, & Technical Subjects 6-12

CCSS: Grades 11-12

Reading: Science & Technical Subjects

3. Analyze how and why individuals, events, or ideas develop and interact over the course of a text.

RST.11-12.3. Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.

Integration of Knowledge and Ideas

7. Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.

RST.11-12.7. Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.

Writing

Text Types and Purposes

1. Write arguments to support claims in an analysis of substantive topics or texts using valid reasoning and relevant and sufficient evidence.

WHST.11-12.1. Write arguments focused on discipline-specific content.

WHST.11-12.1a. Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences the claim(s), counterclaims, reasons, and evidence.

WHST.11-12.1e. Provide a concluding statement or section that follows from or supports the argument presented.

NGSS: Science Performance Expectations (2013)

NGSS: HS Physical Sciences

HS.Forces and Interactions

Performance Expectations

HS-PS2-2. Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.

HS-PS2-3. Apply scientific and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision.*

HS.Energy

Performance Expectations

HS-PS3-1. Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known.

NGSS: Science and Engineering Practices

NGSS: 9-12

Practice 1. Asking questions (for science) and defining problems (for engineering)

Asking questions and defining problems in 9–12 builds on K–8 experiences and progresses to formulating, refining, and evaluating empirically testable questions and design problems using models and simulations.

Ask questions that can be investigated within the scope of the school laboratory, research facilities, or field (e.g., outdoor environment) with available resources and, when appropriate, frame a hypothesis based on a model or theory.

Practice 3. Planning and carrying out investigations

Planning and carrying out investigations in 9-12 builds on K-8 experiences and progresses to include investigations that provide evidence for and test conceptual, mathematical, physical, and empirical models.

Plan and conduct an investigation individually and collaboratively to produce data to serve as the basis for evidence, and in the design: decide on types, how much, and accuracy of data needed to produce reliable measurements and consider limitations on the precision of the data (e.g., number of trials, cost, risk, time), and refine the design accordingly.

Select appropriate tools to collect, record, analyze, and evaluate data.

Make directional hypotheses that specify what happens to a dependent variable when an independent variable is manipulated.

Practice 4. Analyzing and interpreting data

Analyzing data in 9–12 builds on K–8 experiences and progresses to introducing more detailed statistical analysis, the comparison of data sets for consistency, and the use of models to generate and analyze data.

Analyze data using tools, technologies, and/or models (e.g., computational, mathematical) in order to make valid and reliable scientific claims or determine an optimal design solution.

Apply concepts of statistics and probability (including determining function fits to data, slope, intercept, and correlation coefficient for linear fits) to scientific and engineering questions and problems, using digital tools when feasible.

Consider limitations of data analysis (e.g., measurement error, sample selection) when analyzing and interpreting data.

Practice 5. Using mathematics and computational thinking

Mathematical and computational thinking in 9-12 builds on K-8 experiences and progresses to using algebraic thinking and analysis, a range of linear and nonlinear functions including trigonometric functions, exponentials and logarithms, and computational tools for statistical analysis to analyze, represent, and model data. Simple computational simulations are created and used based on mathematical models of basic assumptions.

Use mathematical, computational, and/or algorithmic representations of phenomena or design solutions to describe and/or support claims and/or explanations.

Apply techniques of algebra and functions to represent and solve scientific and engineering problems.

Apply ratios, rates, percentages, and unit conversions in the context of complicated measurement problems involving quantities with derived or compound units (such as mg/mL, kg/m³, acre-feet, etc.).

Practice 6. Constructing explanations (for science) and designing solutions (for engineering)

Constructing explanations and designing solutions in 9–12 builds on K–8 experiences and progresses to explanations and designs that are supported by multiple and independent student-generated sources of evidence consistent with scientific ideas, principles, and theories.

Make a quantitative and/or qualitative claim regarding the relationship between dependent and independent variables.

CT: Science Framework (2005)

CT: Grades 9-12

I. Inquiry

SCIENTIFIC INQUIRY • Scientific inquiry is a thoughtful and coordinated attempt to search out, describe, explain and predict natural phenomena. • Scientific inquiry progresses through a continuous process of questioning, data collection, analysis and interpretation. • Scientific inquiry requires the sharing of findings and ideas for critical review by colleagues and other scientists. **SCIENTIFIC LITERACY** • Scientific literacy includes the ability to read, write, discuss and present coherent ideas about science. • Scientific literacy also includes the ability to search for and assess the relevance and credibility of scientific information found in various print and electronic media. **SCIENTIFIC NUMERACY** • Scientific numeracy includes the ability to use mathematical operations and procedures to calculate, analyze and present scientific data and ideas.

D INQ1. Identify questions that can be answered through scientific investigation.

D INQ10. Communicate about science in different formats, using relevant science vocabulary, supporting evidence and clear logic.

D INQ3. Formulate a testable hypothesis and demonstrate logical connections between the scientific concepts guiding the hypothesis and the design of the experiment.

D INQ4. Design and conduct appropriate types of scientific investigations to answer different questions.

D INQ5. Identify independent and dependent variables, including those that are kept constant and those used as controls.

D INQ6. Use appropriate tools and techniques to make observations and gather data.

D INQ7. Assess the reliability of the data that was generated in the investigation.

D INQ8. Use mathematical operations to analyze and interpret data, and present relationships between variables in appropriate forms.

D INQ.9 Articulate conclusions and explanations based on research data, and assess results based on the design of the investigation.

High School Physics

Conservation of Energy and Momentum The laws of conservation of energy and momentum provide a way to predict and describe the movement of objects

Kinetic energy can be calculated by using the formula $E = (1/2)mv^2$.

Changes in gravitational potential energy near Earth can be calculated by using the formula (change in potential energy) = mgh .

Momentum is calculated as the product mv .

Momentum is a separately conserved quantity different from energy.

An unbalanced force on an object produces a change in its momentum.

The principles of conservation of momentum and energy can be used to solve problems involving elastic and inelastic collisions.

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Critical Content & Skills

What students must KNOW and be able to DO

Students must know-

work, energy, kinetic energy, potential energy, gravitational potential energy, elastic potential energy, mechanical energy, power, momentum, impulse, elastic collision, inelastic collision, conservative, nonconservative, conservation laws, work-energy theorem

Students must be able to-

- justify the selection of a mathematical routine to solve problems.
- apply mathematical routines to quantities that describe natural phenomena.
- design a plan for collecting data to answer a particular scientific question.
- analyze data to identify patterns or relationships.
- use representations and models to analyze situations or solve problems qualitatively and quantitatively
- construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.
- analyze data using tools, technologies, and/or models (e.g., computational, mathematical) in order to make valid and reliable scientific claims or determine an optimal design solution.
- develop and/or use a model to generate data to support explanations, analyze systems, or solve problems.

Core Learning Activities

Core Activities

- Work and Power Lab with Stairs
 - <https://www.nhvweb.net/nhhs/sc...>
- Conservation of Mechanical Energy Lab
 - <http://mrsj.exofire.net/ipc/do...>
- "Explosions" and the Conservation of Momentum Lab
 - <https://rucsm.org/physics/labd...>
- Alternate Online Virtual Conservation of Momentum Lab

<https://www.physicsclassroom.com/Physics-Interactives/Momentum-and-Collisions>

Suggested Activities

- Impulse and Change in Momentum Lab
 - <https://academics.uccs.edu/rgi...>
- Alternate Online Virtual Conservation of Mechanical Energy Lab

<https://phet.colorado.edu/en/simulation/legacy/energy-skate-park>

- Egg Drop Activity
 - <https://stem.northeastern.edu/...>

Assessments

Work and Power Stair Activity

Formative: Lab Assignment



[Stair Lab](#)

Conservation of Energy Lab

Formative: Lab Assignment



[Conservation of Energy Lab.doc](#)

Conservation of Momentum Lab

Formative: Lab Assignment



[Conservation of Momentum Lab.docx](#)

Car Crash Reconstruction

Formative: Group Project



[ACCIDENT RECONSTRUCTION 201415.docx](#)

Conservation of Energy Test

Summative: Written Test



[test 1516.doc](#)

Momentum and Impulse Test

Summative: Written Test



[test 1516 make up use makeup 1819.doc](#)

Resources

Professional & Student

Professional

- Giancoli, Douglas C. *Physics: Principles with Applications*. 5th ed. Upper Saddle River, NJ: Prentice Hall, 1998. Print. Teacher Edition.

Student

- Giancoli, Douglas C. *Physics: Principles with Applications*. 5th ed. Upper Saddle River, NJ: Prentice Hall, 1998. Print. Student Edition.
- <http://www.physicsclassroom.com> Basic background information on concepts in physics.
- Colorado PhET (<https://phet.colorado.edu/>)

Student Learning Expectation & 21st Century Skills

[Information Literacy](#)

[Critical Thinking](#)

[Spoken Communication](#)

Interdisciplinary Connections

Students can relate what they are learning about work, power, and kinetic energy to activities they are doing in physical education classes.

Written Performance



Unit Planner: Rotational Motion Honors Physics

Unit Planner: Rotational Motion Honors Physics

Newtown High School / 2022-2023 / Grade 11 / Science / Honors Physics /
Week 18 - Week 21

Last Updated: Friday, January 14, 2022 by
Kim Lowell

Rotational Motion

Canfield, Christian; Dyer, Michael; Lowell, Kim; Smith, Timothy; Torrance, Melissa

- [Unit Planner](#)
- [Lesson Planner](#)

Concept-Based Unit Development Graphic Organizer (Download)

[Unit Web Template \(Optional\)](#)

Concepts / Conceptual Lens

Please attach your completed Unit Web Template here

Correlation

Concepts- rotational motion, torque, angular momentum, equilibrium, inertia

G

Generalizations / Enduring Understandings

1. Mathematical formulas predict rotational motion.
2. A force exerted at an angle, a distance away from the pivot point generates a torque and can change the angular momentum of the system.
3. Conservation laws govern the motion of rotating objects.
4. Objects that have no net torque are in equilibrium.

Guiding Questions

Please identify the type of question: (F) Factual, (C) Conceptual, (P) Provocative [Debatable]

1.
What is angular displacement? (F)

What is angular velocity? (F)

What is angular acceleration? (F)

How are angular displacement, angular velocity, and angular acceleration related? (C)

What links the linear and rotational motion of an object? (C)

2.
What is torque? (F)

How are torque and angular acceleration calculated? (F)

What is angular momentum? (F)

What is moment of inertia? (F)

Why are long wrenches more effective? (C)

How do balanced forces cause rotation? (C)

How does the choice of system and rotation point affect the forces that cause a torque on an object or a system? (C)

How does a system at rotational equilibrium compare to a system in translational equilibrium? (C)

How does an external net torque change the angular momentum of a system? (C)

What factors affect the moment of inertia for a rotating object? (C)

How is the moment of inertia found for a rotating object? (C)

3.
What is conservation of angular momentum? (F)

Why is a rotating bicycle wheel more stable than a stationary one? (C)

Why does a spinning skater accelerate when his/her arms are brought closer to the body? (C)

How does conservation of energy apply to rotating objects? (C)

Which conservation law is the most important? (P)

Standard(s)

Connecticut Core Standards / Content Standards

GRADUATION STANDARDS

Graduation

PROBLEM SOLVING

Standard 1: The student demonstrates use of the scientific method and applies appropriate procedures to solve and communicate an authentic problem or situation.

Identifies the problem adequately.

Develops an action plan that addresses the problem adequately.

Collects accurate and relevant information, data, or media to adequately address the problem.

Demonstrates or applies a solution to the problem based on the data collected.

Formulates a conclusion that adequately addresses the problem.

The writing generally follows the given format.

CCSS: Literacy in History/Social Studies, Science, & Technical Subjects 6-12

CCSS: Grades 11-12

Reading: Science & Technical Subjects

3. Analyze how and why individuals, events, or ideas develop and interact over the course of a text.

RST.11-12.3. Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.

Integration of Knowledge and Ideas

7. Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.

RST.11-12.7. Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.

Writing

Text Types and Purposes

1. Write arguments to support claims in an analysis of substantive topics or texts using valid reasoning and

relevant and sufficient evidence.

WHST.11-12.1. Write arguments focused on discipline-specific content.

WHST.11-12.1a. Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences the claim(s), counterclaims, reasons, and evidence.

WHST.11-12.1e. Provide a concluding statement or section that follows from or supports the argument presented.

NGSS: Science Performance Expectations (2013)

NGSS: HS Physical Sciences

**HS.Energy
Performance Expectations**

HS-PS3-3. Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.*

NGSS: Science and Engineering Practices

NGSS: 9-12

Practice 1. Asking questions (for science) and defining problems (for engineering)

Asking questions and defining problems in 9–12 builds on K–8 experiences and progresses to formulating, refining, and evaluating empirically testable questions and design problems using models and simulations.

Ask questions to determine relationships, including quantitative relationships, between independent and dependent variables.

Practice 3. Planning and carrying out investigations

Planning and carrying out investigations in 9-12 builds on K-8 experiences and progresses to include investigations that provide evidence for and test conceptual, mathematical, physical, and empirical models.

Plan and conduct an investigation individually and collaboratively to produce data to serve as the basis for evidence, and in the design: decide on types, how much, and accuracy of data needed to produce reliable measurements and consider limitations on the precision of the data (e.g., number of trials, cost, risk, time), and refine the design accordingly.

Select appropriate tools to collect, record, analyze, and evaluate data.

Make directional hypotheses that specify what happens to a dependent variable when an independent variable is manipulated.

Practice 4. Analyzing and interpreting data

Analyzing data in 9–12 builds on K–8 experiences and progresses to introducing more detailed statistical analysis, the comparison of data sets for consistency, and the use of models to generate and analyze data.

Analyze data using tools, technologies, and/or models (e.g., computational, mathematical) in order to make valid and reliable scientific claims or determine an optimal design solution.

Apply concepts of statistics and probability (including determining function fits to data, slope, intercept, and correlation coefficient for linear fits) to scientific and engineering questions and problems, using digital tools when feasible.

Consider limitations of data analysis (e.g., measurement error, sample selection) when analyzing and interpreting data.

Practice 5. Using mathematics and computational thinking

Mathematical and computational thinking in 9-12 builds on K-8 experiences and progresses to using algebraic thinking and analysis, a range of linear and nonlinear functions including trigonometric functions, exponentials and logarithms, and computational tools for statistical analysis to analyze, represent, and model data. Simple computational simulations are created and used based on mathematical models of basic assumptions.

Create and/or revise a computational model or simulation of a phenomenon, designed device, process, or system.

Use mathematical, computational, and/or algorithmic representations of phenomena or design solutions to describe

and/or support claims and/or explanations.

Apply techniques of algebra and functions to represent and solve scientific and engineering problems.

Apply ratios, rates, percentages, and unit conversions in the context of complicated measurement problems involving quantities with derived or compound units (such as mg/mL, kg/m³, acre-feet, etc.).

Practice 6. Constructing explanations (for science) and designing solutions (for engineering)

Constructing explanations and designing solutions in 9–12 builds on K–8 experiences and progresses to explanations and designs that are supported by multiple and independent student-generated sources of evidence consistent with scientific ideas, principles, and theories.

Make a quantitative and/or qualitative claim regarding the relationship between dependent and independent variables.

Apply scientific ideas, principles, and/or evidence to provide an explanation of phenomena and solve design problems, taking into account possible unanticipated effects.

Design, evaluate, and/or refine a solution to a complex real-world problem, based on scientific knowledge, student-generated sources of evidence, prioritized criteria, and tradeoff considerations.

Practice 8. Obtaining, evaluating, and communicating information

Obtaining, evaluating, and communicating information in 9–12 builds on K–8 experiences and progresses to evaluating the validity and reliability of the claims, methods, and designs.

Gather, read, and evaluate scientific and/or technical information from multiple authoritative sources, assessing the evidence and usefulness of each source.

Communicate scientific and/or technical information or ideas (e.g. about phenomena and/or the process of development and the design and performance of a proposed process or system) in multiple formats (i.e., orally, graphically, textually, mathematically).

CT: Science Framework (2005)

CT: Grades 9-12

I. Inquiry

SCIENTIFIC INQUIRY • Scientific inquiry is a thoughtful and coordinated attempt to search out, describe, explain and predict natural phenomena. • Scientific inquiry progresses through a continuous process of questioning, data collection, analysis and interpretation. • Scientific inquiry requires the sharing of findings and ideas for critical review by colleagues and other scientists. **SCIENTIFIC LITERACY** • Scientific literacy includes the ability to read, write, discuss and present coherent ideas about science. • Scientific literacy also includes the ability to search for and assess the relevance and credibility of scientific information found in various print and electronic media. **SCIENTIFIC NUMERACY** • Scientific numeracy includes the ability to use mathematical operations and procedures to calculate, analyze and present scientific data and ideas.

D INQ1. Identify questions that can be answered through scientific investigation.

D INQ10. Communicate about science in different formats, using relevant science vocabulary, supporting evidence and clear logic.

D INQ3. Formulate a testable hypothesis and demonstrate logical connections between the scientific concepts guiding the hypothesis and the design of the experiment.

D INQ4. Design and conduct appropriate types of scientific investigations to answer different questions.

D INQ5. Identify independent and dependent variables, including those that are kept constant and those used as controls.

D INQ6. Use appropriate tools and techniques to make observations and gather data.

D INQ7. Assess the reliability of the data that was generated in the investigation.

D INQ8. Use mathematical operations to analyze and interpret data, and present relationships between variables in appropriate forms.

D INQ.9 Articulate conclusions and explanations based on research data, and assess results based on the design of the investigation.

High School Physics

Motion and Forces Newton's laws predict the motion of most objects

When forces are balanced, no acceleration occurs; thus an object continues to move at a constant speed or stays at rest.

Critical Content & Skills

What students must **KNOW** and be able to **DO**

Students must know-

torque, static equilibrium, lever arm, angular displacement, angular speed, angular acceleration, tangential velocity, angular momentum, rotational kinetic energy, rotational inertia, torque, rotational equilibrium, conservation of angular momentum

Students must be able to-

- justify the selection of a mathematical routine to solve problems.
- apply mathematical routines to quantities that describe natural phenomena.
- design a plan for collecting data to answer a particular scientific question.
- analyze data to identify patterns or relationships.
- use representations and models to analyze situations or solve problems qualitatively and quantitatively
- analyze data using tools, technologies, and/or models (e.g., computational, mathematical) in order to make valid and reliable scientific claims or determine an optimal design solution.
- develop and/or use a model to generate data to support explanations, analyze systems, or solve problems.

Core Learning Activities

Core Activities

- Torque Lab
 - <http://www.phy.olemiss.edu/lab...>
- Alternative online level lab

<https://phet.colorado.edu/en/simulation/balancing-act>

- Mobile Project
 - <http://msquacksphysics.weebly...>

Suggested Activities

- Conservation of Rotational Energy lab
 - <https://physics.mercer.edu/lab...>


Assessments

Torque Lab

Resources


Professional & Student


Formative: Lab Assignment

 [phet torque lab.docx](#)

Mobile Project


Formative: Group Project

 [mobile 1819.doc](#)

 [Mobile Project Rubric update 2.15.pdf](#)

Rotational Motion Test

Summative: Written Test

 [test 1617 make up.doc](#)

Professional

- Giancoli, Douglas C. *Physics: Principles with Applications*. 5th ed. Upper Saddle River, NJ: Prentice Hall, 1998. Print. Teacher Edition.

Student

- Giancoli, Douglas C. *Physics: Principles with Applications*. 5th ed. Upper Saddle River, NJ: Prentice Hall, 1998. Print. Student Edition.
- <http://www.physicsclassroom.com> Basic background information on concepts in physics.
- Colorado PhET (<https://phet.colorado.edu/>)

Student Learning Expectation & 21st Century Skills

- [Information Literacy](#)
- [Critical Thinking](#)
- [Spoken Communication](#)
- [Written Performance](#)

Interdisciplinary Connections

Students can see how mobiles use science as well as artistic principles in their designs.



Unit Planner: Electric and Magnetic Phenomena Honors Physics

Monday, January 11, 2022 12:03AM

Newtown High School / 2022-2023 / Grade 11 / Science / Honors Physics /
Week 22 - Week 30

Last Updated: Friday, January 14, 2022 by
Kim Lowell

Electric and Magnetic Phenomena

Canfield, Christian; Dyer, Michael; Lowell, Kim; Smith, Timothy; Torrance, Melissa

- [Unit Planner](#)
- [Lesson Planner](#)

Concept-Based Unit Development Graphic Organizer (Download)

[Unit Web Template \(Optional\)](#)

Concepts / Conceptual Lens

Please attach your completed Unit Web Template here

Connections

Concepts- charge, Coulomb's Law, electric field, magnetic field, DC circuits, induction, force, alternating current

G

Generalizations / Enduring Understandings

1. Objects with charge create an electric field.
2. The force between charges are governed by Coulomb's Law.
3. Conservation laws govern how a DC circuit behaves.
4. Moving electric charges produce magnetic fields and moving magnets induce electric fields.

Guiding Questions

Please identify the type of question: (F) Factual, (C) Conceptual, (P) Provocative [Debatable]

1. What are the differences between conductors and insulators? (F)

How are objects charge by conduction and induction? (F)

What is an electric field? (F)

What are electric field lines? (F)

How do electrical charges behave in an electric field? (C)

Why does a balloon stick on the ceiling, if rubber is an insulator? (C)

2.

What is the relationship between electric forces, charges, and distance? (F)

What is an inverse square law? (F)

How are electrostatic and gravitational forces alike? (C)

How are electrostatic and gravitational forces different? (C)

3.

What is voltage, current, and resistance? (F)

What is Ohm's law? (F)

What are series and parallel circuits? (F)

What is the difference between AC and DC? (F)

What conditions affect the voltage, the current, and the resistance in a circuit? (C)

How does changing shape alter the value of something? (C)

Why are Christmas lights wired in series but house lights wired in parallel? (C)

4.

What is the right hand rule? (F)

How are currents generated by magnetic fields? (C)

How are charges affected by magnetic fields? (C)

Would life be different if electric fields and magnetic fields did not induce one another? (P)

Standard(s)

Connecticut Core Standards / Content Standards

CCSS: Literacy in History/Social Studies, Science, & Technical Subjects 6-12

CCSS: Grades 11-12

Reading: Science & Technical Subjects

3. Analyze how and why individuals, events, or ideas develop and interact over the course of a text.

RST.11-12.3. Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.

Integration of Knowledge and Ideas

7. Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.

RST.11-12.7. Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.

Writing

Text Types and Purposes

1. Write arguments to support claims in an analysis of substantive topics or texts using valid reasoning and relevant and sufficient evidence.

WHST.11-12.1. Write arguments focused on discipline-specific content.

WHST.11-12.1a. Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences the claim(s), counterclaims, reasons, and evidence.

WHST.11-12.1e. Provide a concluding statement or section that follows from or supports the argument presented.

NGSS: Science Performance Expectations (2013)

NGSS: HS Physical Sciences

HS.Forces and Interactions

Performance Expectations

HS-PS2-4. Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.

HS-PS2-5. Plan and conduct an investigation to provide evidence that an electric current can produce a magnetic field and that a changing magnetic field can produce an electric current.

NGSS: Science and Engineering Practices

NGSS: 9-12

Practice 1. Asking questions (for science) and defining problems (for engineering)

Asking questions and defining problems in 9–12 builds on K–8 experiences and progresses to formulating, refining, and evaluating empirically testable questions and design problems using models and simulations.

Ask questions to determine relationships, including quantitative relationships, between independent and dependent variables.

Practice 3. Planning and carrying out investigations

Planning and carrying out investigations in 9–12 builds on K–8 experiences and progresses to include investigations that provide evidence for and test conceptual, mathematical, physical, and empirical models.

Plan and conduct an investigation individually and collaboratively to produce data to serve as the basis for evidence, and in the design: decide on types, how much, and accuracy of data needed to produce reliable measurements and consider limitations on the precision of the data (e.g., number of trials, cost, risk, time), and refine the design accordingly.

Select appropriate tools to collect, record, analyze, and evaluate data.

Make directional hypotheses that specify what happens to a dependent variable when an independent variable is manipulated.

Practice 4. Analyzing and interpreting data

Analyzing data in 9–12 builds on K–8 experiences and progresses to introducing more detailed statistical analysis, the comparison of data sets for consistency, and the use of models to generate and analyze data.

Analyze data using tools, technologies, and/or models (e.g., computational, mathematical) in order to make valid and reliable scientific claims or determine an optimal design solution.

Apply concepts of statistics and probability (including determining function fits to data, slope, intercept, and correlation coefficient for linear fits) to scientific and engineering questions and problems, using digital tools when feasible.

Consider limitations of data analysis (e.g., measurement error, sample selection) when analyzing and interpreting data.

Analyze data to identify design features or characteristics of the components of a proposed process or system to optimize it relative to criteria for success.

Practice 5. Using mathematics and computational thinking

Mathematical and computational thinking in 9–12 builds on K–8 experiences and progresses to using algebraic thinking and analysis, a range of linear and nonlinear functions including trigonometric functions, exponentials and logarithms, and computational tools for statistical analysis to analyze, represent, and model data. Simple computational simulations are created and used based on mathematical models of basic assumptions.

Use mathematical, computational, and/or algorithmic representations of phenomena or design solutions to describe and/or support claims and/or explanations.

Apply techniques of algebra and functions to represent and solve scientific and engineering problems.

Apply ratios, rates, percentages, and unit conversions in the context of complicated measurement problems involving quantities with derived or compound units (such as mg/mL, kg/m³, acre-feet, etc.).

Practice 6. Constructing explanations (for science) and designing solutions (for engineering)

Constructing explanations and designing solutions in 9–12 builds on K–8 experiences and progresses to explanations and designs that are supported by multiple and independent student-generated sources of evidence consistent with scientific ideas, principles, and theories.

Make a quantitative and/or qualitative claim regarding the relationship between dependent and independent variables.

CT: Science Framework (2005)

CT: Grades 9–12

I. Inquiry

SCIENTIFIC INQUIRY • Scientific inquiry is a thoughtful and coordinated attempt to search out, describe, explain and predict natural phenomena. • Scientific inquiry progresses through a continuous process of questioning, data collection, analysis and interpretation. • Scientific inquiry requires the sharing of findings and ideas for critical review by colleagues and other scientists. **SCIENTIFIC LITERACY** • Scientific literacy includes the ability to read, write, discuss and present coherent ideas about science. • Scientific literacy also

includes the ability to search for and assess the relevance and credibility of scientific information found in various print and electronic media. SCIENTIFIC NUMERACY • Scientific numeracy includes the ability to use mathematical operations and procedures to calculate, analyze and present scientific data and ideas.

D INQ10. Communicate about science in different formats, using relevant science vocabulary, supporting evidence and clear logic.

D INQ3. Formulate a testable hypothesis and demonstrate logical connections between the scientific concepts guiding the hypothesis and the design of the experiment.

D INQ4. Design and conduct appropriate types of scientific investigations to answer different questions.

D INQ5. Identify independent and dependent variables, including those that are kept constant and those used as controls.

D INQ6. Use appropriate tools and techniques to make observations and gather data.

D INQ7. Assess the reliability of the data that was generated in the investigation.

D INQ8. Use mathematical operations to analyze and interpret data, and present relationships between variables in appropriate forms.

D INQ9. Articulate conclusions and explanations based on research data, and assess results based on the design of the investigation.

High School Physics

Electric and Magnetic Phenomena Electric and magnetic phenomena are related and have many practical applications.

The voltage or current in simple direct current (DC) electric circuits constructed from batteries, wires, resistors, and capacitors can be predicted using Ohm's law.

Any resistive element in a DC circuit dissipates energy, which heats the resistor.

The power in any resistive circuit element can be calculated by using the formula $Power = I^2R$.

Charged particles are sources of electric fields and are subject to the forces of the electric fields from other charges.

Magnetic materials and electric currents (moving electric charges) are sources of magnetic fields and are subject to forces arising from the magnetic fields of other sources.

Changing magnetic fields produce electric fields, thereby inducing currents in nearby conductors.

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Critical Content & Skills

What students must KNOW and be able to DO

Students must know:

electric charge, Coulomb's Law, conductors, insulators, conduction, induction, electric field, electrostatic force, electrostatic potential, potential difference, capacitance, equipotential surfaces, electron volt, voltage, current, resistance, circuit, Ohm's Law, electromotive force, magnetic field, induced current, electromagnetic induction, magnetic flux, electric motor, electric generator, transformer, Lenz's Law, Faraday's Law

Students must be able to-

- justify the selection of a mathematical routine to solve problems.
- apply mathematical routines to quantities that describe natural phenomena.
- design a plan for collecting data to answer a particular scientific question.
- analyze data to identify patterns or relationships.

-use representations and models to analyze situations or solve problems qualitatively and quantitatively

-analyze data using tools, technologies, and/or models (e.g., computational, mathematical) in order to make valid and reliable scientific claims or determine an optimal design solution.

-develop and/or use a model to generate data to support explanations, analyze systems, or solve problems.

Core Learning Activities

Core Activities

- Electrostatic Lab
 - <https://manoa.hawaii.edu/explo...>
- Ohm's Law Lab
 - <https://www.phy.olemiss.edu/la...>
- Alternative Online Ohm's Law Lab
 - <https://phet.colorado.edu/en/simulation/legacy/ohms-law>

Suggested Activities

- Balloon Lab
 - <http://www.physicsinmotion.net...>
- Play-Doh Lab
 - <https://aapt.scitation.org/doi...>
- Alternative Online Play-Doh Lab

<http://www.pulsedpower.net/Applets/Electronics/resistance2/resistance.html>

- Circuit Lab
 - <https://www.phy.olemiss.edu/la...>
- Alternative Online Circuit Lab

<https://phet.colorado.edu/en/simulation/circuit-construction-kit-dc-virtual-lab>

- Drawing Magnetic Field Lines
 - <https://s3.wp.wsu.edu/uploads/...>
- Magnetic Fields of Coil Lab
 - <http://physics.ham.miamioh.edu...>
- Making a Motor
 - <https://www.spsnational.org/th...>

Assessments

Electrostatic Lab

Formative: Lab Assignment



Electrostatic Lab

Ohm's Law Lab






Formative: Lab Assignment

Resources

Professional & Student

Professional

- Giancoli, Douglas C. *Physics: Principles with Applications*. 5th ed. Upper Saddle River, NJ:

<p> <u>Ohm's Law Lab</u> Building a Motor Formative: Group Project</p> <p> <u>Instructions for building a motor.doc</u> Electrostatic Test Summative: Written Test</p> <p> <u>test 1516 make up.doc</u> Current Electricity Test Summative: Written Test</p> <p> <u>test 1415.doc</u> Electricity and Magnetism Test Summative: Written Test</p> <p> <u>test 1516.doc</u></p>	<p>Prentice Hall, 1998. Print. Teacher Edition.</p> <p>Student</p> <ul style="list-style-type: none"> • Giancoli, Douglas C. <i>Physics: Principles with Applications</i>. 5th ed. Upper Saddle River, NJ: Prentice Hall, 1998. Print. Student Edition. • http://www.physicsclassroom.com Basic background information on concepts in physics. • Colorado PhET (https://phet.colorado.edu/)
<p>Student Learning Expectation & 21st Century Skills</p> <p><u>Information Literacy</u> <u>Critical Thinking</u> <u>Spoken Communication</u> <u>Written Performance</u></p>	<p>Interdisciplinary Connections</p>



Unit Planner: Waves Honors Physics

Monday, January 9, 2023, 10:09AM

Newtown High School / 2022-2023 / Grade 11 / Science / Honors Physics /
Week 31 - Week 38

Last Updated: Friday, January 14, 2022 by
Kim Lowell

Waves

Canfield, Christian; Dyer, Michael; Lowell, Kim; Smith, Timothy; Torrance, Melissa

- [Unit Planner](#)
- [Lesson Planner](#)

Concept-Based Unit Development Graphic Organizer (Download)

[Unit Web Template \(Optional\)](#)

Concepts / Conceptual Lens

Please attach your completed Unit Web Template here

Behavior

Concepts- waves, light, sound, energy, interference, mathematical formulas, medium boundaries

G

Generalizations / Enduring Understandings

1. Waves transfer energy and momentum without matter.
2. Mathematical formulas predict the qualities of sound.
3. Medium boundaries manipulate waves.
4. Light and sound travel as waves.
5. Waves can exhibit constructive or destructive interference.

Guiding Questions

Please identify the type of question: (F) Factual, (C) Conceptual, (P) Provocative [Debatable]

1. What is the difference between transverse and longitudinal waves? (F)

What is the relationship between wave speed, wavelength, and frequency? (F)

How does a restoring force differ from a "regular" force? (F)

What affects the period of a pendulum? (F)

How does the presence of restoring forces predict and lead to harmonic motion? (C)

What is the Doppler Effect? (F)

How does the motion of an adult and a child on a swing differ? (C)

Why does a police siren sound different when it is moving toward you than when it is moving away from you? (C)

2.
What is a node? (F)

What is an antinode? (F)

Why do different guitar strings have different pitches? (C)

Why does a flute have a higher pitch than a trumpet? (C)

3.
What is the law of reflection? (F)

How does Snell's Law predict how light will bend as it travels from one medium to another? (F)

Why are optical fibers preferred over electrical cables to send information? (F)

What are the practical applications of reflection and refraction? (C)

Does an object become invisible? (C)

Which lens, diverging or converging, is more useful? (P)

4.

What type of wave is sound? (F)

What type of wave is light? (F)

How are sound and light waves similar? (C)

How are sound and light waves different? (C)

Many movies sometimes do not accurately depict science principles. What mistakes are made about sound and light waves in movies? (P)

5.

What happens when two waves meet? (F)

What is a standing wave? (F)

How can auditoriums be designed to minimize areas of destructive interference? (C)

Standard(s)

Connecticut Core Standards / Content Standards

GRADUATION STANDARDS

Graduation

PROBLEM SOLVING

Standard 1: The student demonstrates use of the scientific method and applies appropriate procedures to solve and communicate an authentic problem or situation.

Identifies the problem adequately.

Develops an action plan that addresses the problem adequately.

Collects accurate and relevant information, data, or media to adequately address the problem.

Demonstrates or applies a solution to the problem based on the data collected.

Formulates a conclusion that adequately addresses the problem.

The writing generally follows the given format.

CCSS: Literacy in History/Social Studies, Science, & Technical Subjects 6-12

CCSS: Grades 11-12

Reading: Science & Technical Subjects

3. Analyze how and why individuals, events, or ideas develop and interact over the course of a text.

RST.11-12.3. Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.

Integration of Knowledge and Ideas

7. Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.

RST.11-12.7. Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.

Writing

Text Types and Purposes

1. Write arguments to support claims in an analysis of substantive topics or texts using valid reasoning and relevant and sufficient evidence.

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WHST.11-12.1a. Introduce precise, knowledgeable claim(s), establish the significance of the claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that logically sequences the claim(s), counterclaims, reasons, and evidence.

WHST.11-12.1e. Provide a concluding statement or section that follows from or supports the argument presented.

NGSS: Science Performance Expectations (2013)

NGSS: HS Physical Sciences

HS.Waves and Electromagnetic Radiation

Performance Expectations

HS-PS4-1. Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various media.

HS-PS4-4. Evaluate the validity and reliability of claims in published materials of the effects that different frequencies of electromagnetic radiation have when absorbed by matter.

HS-PS4-5. Communicate technical information about how some technological devices use the principles of wave behavior and wave interactions with matter to transmit and capture information and energy.*

NGSS: Science and Engineering Practices

NGSS: 9-12

Practice 1. Asking questions (for science) and defining problems (for engineering)

Asking questions and defining problems in 9–12 builds on K–8 experiences and progresses to formulating, refining, and evaluating empirically testable questions and design problems using models and simulations.

Define a design problem that involves the development of a process or system with interacting components and criteria and constraints that may include social, technical, and/or environmental considerations.

Practice 2. Developing and using models

Modeling in 9–12 builds on K–8 experiences and progresses to using, synthesizing, and developing models to predict and show relationships among variables between systems and their components in the natural and designed worlds.

Develop and/or use multiple types of models to provide mechanistic accounts and/or predict phenomena, and move flexibly between model types based on merits and limitations.

Develop a complex model that allows for manipulation and testing of a proposed process or system.

Develop and/or use a model (including mathematical and computational) to generate data to support explanations, predict phenomena, analyze systems, and/or solve problems.

Practice 3. Planning and carrying out investigations

Planning and carrying out investigations in 9-12 builds on K-8 experiences and progresses to include investigations that provide evidence for and test conceptual, mathematical, physical, and empirical models.

Plan an investigation or test a design individually and collaboratively to produce data to serve as the basis for evidence as part of building and revising models, supporting explanations for phenomena, or testing solutions to problems. Consider possible confounding variables or effects and evaluate the investigation's design to ensure variables are controlled.

Select appropriate tools to collect, record, analyze, and evaluate data.

Practice 4. Analyzing and interpreting data

Analyzing data in 9-12 builds on K-8 experiences and progresses to introducing more detailed statistical analysis, the comparison of data sets for consistency, and the use of models to generate and analyze data.

Analyze data using tools, technologies, and/or models (e.g., computational, mathematical) in order to make valid and reliable scientific claims or determine an optimal design solution.

Apply concepts of statistics and probability (including determining function fits to data, slope, intercept, and correlation coefficient for linear fits) to scientific and engineering questions and problems, using digital tools when feasible.

Consider limitations of data analysis (e.g., measurement error, sample selection) when analyzing and interpreting data.

Compare and contrast various types of data sets (e.g., self-generated, archival) to examine consistency of measurements and observations.

Practice 5. Using mathematics and computational thinking

Mathematical and computational thinking in 9-12 builds on K-8 experiences and progresses to using algebraic thinking and analysis, a range of linear and nonlinear functions including trigonometric functions, exponentials and logarithms, and computational tools for statistical analysis to analyze, represent, and model data. Simple computational simulations are created and used based on mathematical models of basic assumptions.

Use mathematical, computational, and/or algorithmic representations of phenomena or design solutions to describe and/or support claims and/or explanations.

Apply techniques of algebra and functions to represent and solve scientific and engineering problems.

Apply ratios, rates, percentages, and unit conversions in the context of complicated measurement problems involving quantities with derived or compound units (such as mg/mL, kg/m³, acre-feet, etc.).

Practice 6. Constructing explanations (for science) and designing solutions (for engineering)

Constructing explanations and designing solutions in 9-12 builds on K-8 experiences and progresses to explanations and designs that are supported by multiple and independent student-generated sources of evidence consistent with scientific ideas, principles, and theories.

Design, evaluate, and/or refine a solution to a complex real-world problem, based on scientific knowledge, student-generated sources of evidence, prioritized criteria, and tradeoff considerations.

CT: Science Framework (2005)

CT: Grades 9-12

I. Inquiry

SCIENTIFIC INQUIRY • Scientific inquiry is a thoughtful and coordinated attempt to search out, describe, explain and predict natural phenomena. • Scientific inquiry progresses through a continuous process of questioning, data collection, analysis and interpretation. • Scientific inquiry requires the sharing of findings and ideas for critical review by colleagues and other scientists. **SCIENTIFIC LITERACY** • Scientific literacy includes the ability to read, write, discuss and present coherent ideas about science. • Scientific literacy also

includes the ability to search for and assess the relevance and credibility of scientific information found in various print and electronic media. SCIENTIFIC NUMERACY • Scientific numeracy includes the ability to use mathematical operations and procedures to calculate, analyze and present scientific data and ideas.

D INQ10. Communicate about science in different formats, using relevant science vocabulary, supporting evidence and clear logic.

D INQ6. Use appropriate tools and techniques to make observations and gather data.

D INQ7. Assess the reliability of the data that was generated in the investigation.

D INQ8. Use mathematical operations to analyze and interpret data, and present relationships between variables in appropriate forms.

D INQ.9 Articulate conclusions and explanations based on research data, and assess results based on the design of the investigation.

High School Physics

Waves Waves have characteristic properties that do not depend on the type of wave

Waves carry energy from one place to another.

Transverse and longitudinal waves exist in mechanical media, such as springs and ropes, and in the earth as seismic waves.

Wavelength, frequency, and wave speed are related.

Sound is a longitudinal wave whose speed depends on the properties of the medium in which it propagates.

Radio waves, light, and X-rays are different wavelength bands in the spectrum of electromagnetic waves whose speed in a vacuum is approximately 3×10^8 m/s, and less when passing through other media.

Waves have characteristic behaviors such as interference, diffraction, refraction and polarization.

Beats and the Doppler Effect result from the characteristic behavior of waves.

Critical Content & Skills

What students must KNOW and be able to DO

Students must know-

simple harmonic motion, spring constant, amplitude, cycle, frequency, period, equilibrium position, longitudinal wave, transverse wave, resonance, superposition, interference, Doppler Effect, wavelength, wave velocity, reflection, refraction, Snell's Law, critical angle, total internal reflection, virtual image, focal point, focal length, refraction, electromagnetic spectrum

Students must be able to-

- justify the selection of a mathematical routine to solve problems.
- apply mathematical routines to quantities that describe natural phenomena.
- design a plan for collecting data to answer a particular scientific question.
- analyze data to identify patterns or relationships.
- use representations and models to analyze situations or solve problems qualitatively and quantitatively

- analyze data using tools, technologies, and/or models (e.g., computational, mathematical) in order to make valid and reliable scientific claims or determine an optimal design solution.

- develop and/or use a model to generate data to support explanations, analyze systems, or solve problems.

Core Learning Activities

Core Activities

- Speed of Sound Lab
 - <https://www.mines.edu/teacherp...>
- Optical Bench Lab
 - <https://www.homesciencetools.c...>
- Alternative Online Optical Bench Labs

<https://www.physicsclassroom.com/Physics-Interactives/Refraction-and-Lenses/Optics-Bench>

Suggested Activities

- Light Box Reflection/Refraction Activity
 - <http://www.umsl.edu/~physics/f...>
- Alternative Light Box Lab


<https://www.physicsclassroom.com/Physics-Interactives/Refraction-and-Lenses/Refraction>

- Refraction of Light/ Snell's Law
 - <https://groups.physics.northwe...>
- Alternative Online Refraction Lab
 - <https://phet.colorado.edu/en/s...>

Assessments


Speed of Sound Lab

Formative: Lab Assignment

 [data for speed of sound lab.docx](#)


Musical Instrument Project

Formative: Group Project

 [musical instrument project.docx](#)

Snell's Law Lab

Formative: Lab Assignment

 [Snell's Law Lab.docx](#)


Optical Bench Lab

Formative: Lab Assignment

 [Optical Bench Lab](#)


Waves and Sound Test

Summative: Written Test

 [test 1516.doc](#)

Light Test

Summative: Written Test

 [test 1516.doc](#)

Resources

Professional & Student

Professional

- Giancoli, Douglas C. *Physics: Principles with Applications*. 5th ed. Upper Saddle River, NJ: Prentice Hall, 1998. Print. Teacher Edition.

Student

- Giancoli, Douglas C. *Physics: Principles with Applications*. 5th ed. Upper Saddle River, NJ: Prentice Hall, 1998. Print. Student Edition.
- <http://www.physicsclassroom.com> Basic background information on concepts in physics.
- Colorado PhET (<https://phet.colorado.edu/>)

Student Learning Expectation & 21st Century Skills

[Information Literacy](#)

[Critical Thinking](#)

[Spoken Communication](#)

[Written Performance](#)

Interdisciplinary Connections

Students can connect what they are learning about sound to the musical instruments that they play in band.

Personnel – Certified/Non-Certified

Freedom of Speech and the Use of Media Including Social Media

Public Communications by Employees

The Newtown Board of Education (the “Board”) recognizes and respects the First Amendment Rights of all of its employees to make public statements relating to matters of public concern and to otherwise participate in the public discourse through any and all media, including social media. Additionally, the Board recognizes the importance and utility of social media and networks for its employees. The laws regarding social media continue to evolve and change. Nothing in this policy or regulation is intended to limit an employee’s right to use social media or personal online accounts under applicable law, as it may evolve. The Board of Education also recognizes that inappropriate content authored by educators that is made available for public consumption can interfere with educational effectiveness. Therefore, Newtown Public School employees shall be expected to strike an appropriate balance between exercising their right to freedom of speech and maintaining their effectiveness and credibility as educators. The Board will resolve any conflict between this policy and applicable law in favor of the law.

Ordinarily, the use of public discourse and social media by employees, including employees’ use of personal online accounts, will not be a legal or policy issue. While a policy cannot address every instance of inappropriate public discourse or use of social media, employees must refrain from discourse or social media use that:

- 1) interferes, disrupts or undermines the effective operation of the school district;
- 2) is used to engage in harassing, defamatory, obscene, abusive, discriminatory or threatening or similarly inappropriate communications;
- 3) creates a hostile work environment;
- 4) breaches confidentiality obligations of school district employees; or
- 5) violates the law, board policies and/or other school rules and regulations.

The Board of Education, through its Superintendent, will adopt and maintain administrative regulations to implement this policy.

Legal Reference:

U.S. Constitution, Amend. I
Conn. Constitution, Article I, Sections 3, 4, 14
Electronic Communication Privacy Act, 18 U.S.C. §§ 2510 through 2520
Conn. Gen. Stat. § 31-40x
Conn. Gen. Stat. § 31-48d
Conn. Gen. Stat. § 31-51q
Conn. Gen. Stat. §§ 53a-182; 53a-183; 53a-193 through 52a-200, 53a-250

Keyishian v. Board of Regents, 395 U.S. 589, 603 (1967)

Perry v. Sindermann, 408 U.S. 593 (1972)

Pickering v. Board of Education, 391 U.S. 563 (1968)
Connick v. Myers, 461 U.S. 138 (1983)
Garcetti v. Ceballos, 547 U.S. 126 S.Ct. 1951 (2006)
Sterzing v. Fort Bend Independent School District, 376F. Supp.
657 (S.D. Tex 1972)
Grayned v. City of Rockford, 408 U.S. 104 (1972)
Miller v. California, 413 U.S. 15 (1973)

Policy adopted: September 21, 2021

NEWTOWN PUBLIC SCHOOLS
Newtown, Connecticut

Personnel – Certified/Non-Certified

Freedom of Speech and use of Media, Including Social Media

The **Newtown** Board of Education (the “**Board**”) recognizes and respects the First Amendment Rights of all of its employees to make public statements relating to matters of public concern and to otherwise participate in the public discourse through any and all media, including social media. Additionally, the Board recognizes the importance and utility of social media and networks for its employees. The laws regarding social media continue to evolve and change. Nothing in the Board’s policy or this regulation is intended to limit an employee’s right to use social media or personal online accounts under applicable law, as it may evolve. The Board of Education also recognizes that inappropriate content authored by educators that is made available for public consumption can interfere with educational effectiveness. Therefore, Newtown Public School employees shall be expected to strike an appropriate balance between exercising their right to freedom of speech and maintaining their effectiveness and credibility as educators. The Board will resolve any conflict between this policy and applicable law in favor of the law.

Ordinarily, the use of social media by employees, including employees’ personal online accounts, will not be a legal or policy issue. While a policy or regulation cannot address every instance of inappropriate social media use, employees must refrain from social media use that:

- 1) interferes, disrupts or undermines the effective operation of the school district;
- 2) is used to engage in harassing, defamatory, obscene, abusive, discriminatory or threatening or similarly inappropriate communications;
- 3) creates a hostile work environment;
- 4) breaches confidentiality obligations of school district employees; or
- 5) violates the law, Board policies and/or other school rules and regulations.

Definitions:

The rapid speed at which technology continuously evolves makes it difficult, if not impossible, to identify all types of social media.

Thus, the term **Social Media** includes a variety of online tools and services that allow users to publish content and interact with their audiences. By way of example, social media includes, but is not limited to, the following websites or applications, including an employee’s personal online account using such social media:

- (1) social-networking (e.g. Facebook, LinkedIn, Google+, Classmates.com);
- (2) blogs and micro-blogs (e.g. Twitter, Tumblr, Medium);
- (3) content-sharing (e.g. Scribd, SlideShare, DropBox);

Personnel – Certified/Non-Certified

Freedom of Speech and use of Media, Including Social Media

- (4) imagesharing, videosharing or livestreaming (e.g. Snapchat, Periscope, Flickr, YouTube, Instagram, Vine, Pinterest);
- (5) other sharing sites or apps such as by sound, location, news, or messaging, etc. (e.g. Reddit, Kik, Yik Yak, SoundCloud, WhatsApp).

Board of Education (“Board”) includes all names, logos, buildings, images and entities under the authority of the Board of Education.

Electronic communications device includes any electronic device that is capable of transmitting, accepting or processing data, including, but not limited to, a computer, computer network and computer system, and a cellular or wireless telephone.

Personal online account includes any online account that is used by an employee exclusively for personal purposes and unrelated to any business purpose of the Board, including, but not limited to electronic mail, social media and retail-based Internet websites. Personal online account does not include any account created, maintained, used or accessed by an employee for a business, educational or instructional purpose of the Board.

Rules Concerning District-Sponsored Social Media Activity

1. The Superintendent or designee will determine acceptable district sponsored social media activity platforms. In order for an employee to use social media sites as an educational tool or in relation to extracurricular activities or programs of the school district, the employee must seek and obtain the prior permission of his/her supervisor.
2. Employees may not use personal online accounts to access social media for classroom activities without express permission of the employee’s supervisor. Where appropriate and with permission, district-sponsored social media accounts should be used for such purposes.
3. If an employee wishes to use social media sites to communicate meetings, activities, games, responsibilities, announcements etc., for a school-based club or a school-based activity or an official school-based organization, or an official sports team, the employee must also comply with the following rules:
 - o The employee must receive the permission of his/her immediate supervisor.
 - o The employee must not use his/her personal online account for such purpose, but shall use his/her Board-issued account.
 - o The employee must ensure that such social media use is compliant with all Board of Education policies, regulations, and applicable state and federal law, including the provision of required legal notices and permission slips to parents.

Personnel – Certified/Non-Certified

Freedom of Speech and use of Media, Including Social Media

- The employee must set up the club, etc. as a group list which will be "closed" (e.g. membership in the group is limited to students, parents and appropriate school personnel), and "monitored" (e.g. the employee had the ability to access and supervise communications on the social media site).
 - Parents shall be permitted to access any page that their child has been invited to join.
 - Access to the page may only be permitted for educational purposes related to the club, activity, organization or team.
 - The employee responsible for the page will monitor it regularly.
 - The employee's supervisor shall be permitted access to any page established by the employee for a school-related purpose.
 - Employees are required to maintain appropriate professional boundaries in the establishment and maintenance of all such district-sponsored social media activity.
4. Employees are prohibited from making harassing, defamatory, obscene, abusive, discriminatory or threatening or similarly inappropriate statements in their social media communications using district-sponsored sites or accounts or through Board-issued electronic accounts.
 5. Employees are required to comply with all Board of Education policies and procedures and all applicable laws with respect to the use of electronic communications devices, networks, Board-issued accounts, or when accessing district-sponsored social media sites or while using personal devices on the district's wireless network or while accessing district servers.
 6. The Board of Education reserves the right to monitor all employee use of district computers and other electronic devices, including employee blogging and social networking activity. An employee should have no expectation of personal privacy in any communication made through social media, including personal online accounts, while using district electronic communications devices.
 7. All communications through district-sponsored social media or Board-issued electronic accounts must comply with the Board's of Education's policies concerning confidentiality, including the confidentiality of student information. If an employee is considering sharing information and is unsure about the confidential nature of the information, the employee shall consult with his/her supervisor prior to communicating such information.
 8. An employee may not link a district-sponsored social media page to any personal online account or sites not sponsored by the school district.

Personnel – Certified/Non-Certified

Freedom of Speech and use of Media, Including Social Media

9. An employee may not use district-sponsored social media or Board-issued electronic accounts for communications for private financial gain, political, commercial, advertisement, proselytizing or solicitation purposes.
10. An employee may not use district-sponsored social media or Board-issued electronic accounts in a manner that misrepresents personal views as those of the Board of Education, individual school or school district, or in a manner that could be construed as such.

Rules Concerning Personal Online Accounts

1. The Board understands that employees utilize social media and the web for personal matters in the workplace. The Board of Education reserves the right to monitor all employee use of district electronic communications devices, including a review of online and personal social media activities. An employee should have no expectation of personal privacy in any personal communication made through social media while using district computers, district-issued cellular telephones or other electronic communications devices. While the Board reserves the right to monitor use of its electronic communications devices, employees may engage in incidental personal use of social media in the workplace so long as such use does not interfere with operations and productivity, and does not violate other Board policies.
2. An employee may not mention, discuss, reference or link to the Board of Education, the school district or its individual schools, programs or teams using personal online accounts or other sites or applications in a manner that could reasonably be construed as an official school district communication, unless the employee also states within the communication that such communication is the personal view of the employee of the school district and that the views expressed are the employee's alone and do not represent the views of the school district or the Board of Education. An example of such a disclaimer is: "the opinions and views expressed are those of the author and do not necessarily represent the position or opinion of the school district or Board of Education." For example, except as may be permitted by Board policy, employees may not provide job references for other individuals on social media that indicate that such references are made in an official capacity on behalf of the Board of Education.
3. Employees are required to maintain appropriate professional boundaries with students, parents, and colleagues. For example, absent an unrelated online relationship (e.g., relative, family friend, or personal friendship unrelated to school), it is not appropriate for a teacher or administrator to "friend" a student or his/her parent or guardian or otherwise establish special relationships with selected students through personal online account, and it is not appropriate for an employee to give students or parents access to personal postings unrelated to school.

Personnel – Certified/Non-Certified

Freedom of Speech and use of Media, Including Social Media

4. In accordance with the public trust doctrine, employees are advised to refrain from engaging in harassing, defamatory, obscene, abusive, discriminatory or threatening or similarly inappropriate communications through personal online accounts. Such communications reflect poorly on the school district's reputation, can affect the educational process and may substantially and materially interfere with an employee's ability to fulfill his/her professional responsibilities.
5. Employees are individually responsible for their personal communications through social media and personal online accounts. Employees may be sued by other employees, parents or others, and any individual that views an employee's communication through social media and personal online accounts as defamatory, pornographic, proprietary, harassing, libelous or creating a hostile work environment. In addition, employees should consider refraining from posting anything that belongs to another person or entity, such as copyrighted publications or trademarked images. As all of these activities are outside the scope of employment, employees may be personally liable for such claims.
6. Employees are required to comply with all Board of Education policies and procedures with respect to the use of electronic communications devices when accessing personal online accounts and/or social media through district computer systems. Any access to personal online accounts and/or personal social media activities while on school property or using school district equipment must comply with those policies, and may not interfere with an employee's duties at work.
7. All communications through personal online accounts and/or social media must comply with the Board's of Education's policies concerning confidentiality, including the confidentiality of student information. If an employee is considering sharing information and is unsure about the confidential nature of the information, the employee shall consult with his/her supervisor prior to communicating such information.
8. An employee may not post official Board of Education material using a personal online account without written permission of his/her supervisor.
9. All of the Board's of Education's policies and administrative regulations apply to employee use of personal online accounts in the same way that they apply to conduct that occurs in the workplace and off duty conduct.

Access to Personal Online Accounts

1. An employee may not be required by his/her supervisor to provide his/her username, password, or other means of authentication of a personal online account.
2. An employee may not be required to authenticate or access a personal online account in the presence of his/her supervisor.
3. An employee may not be required to invite or accept an invitation from his/her supervisor or required to join a group with the employee's personal online account.

Personnel – Certified/Non-Certified

Freedom of Speech and use of Media, Including Social Media

Use of Crowdfunding Activities
OR
~~*Prohibition on Crowdfunding Activities*~~

Use of Crowdfunding Activities

Prior to engaging in any crowdfunding activities (e.g. DonorsChoose, Kickstarter, GoFundMe, etc) for the Board of Education, its schools, classes, or extracurricular teams or clubs, an employee must first apply in writing to the building principal and receive approval for the crowdfunding activity. Such written application must include the name of the website or application to be utilized, a full description of the reason for the crowdfunding activity, a copy of the proposed personal profile to be listed on the site/application, and the proposed content to be uploaded to the crowdfunding website or application, including images. Any money received from crowdfunding activities must be deposited directly into a school activity fund and may not first be received by the employee. Crowdfunding activities must comply with all Board of Education policies, regulations and procedures, and shall not include photos of students or the sharing of any confidential student information.

OR

~~*Prohibition on Crowdfunding Activities*~~

~~— Employees are prohibited from engaging in crowdfunding activities (e.g. the use of websites or applications such as DonorsChoose, Kickstarter, GoFundMe, etc.) on behalf of the Board of Education, its schools, classes, or extracurricular teams or clubs.]~~

Disciplinary Consequences

Violation of the Board’s policy concerning the use of social media or these administrative regulations may lead to discipline up to and including the termination of employment consistent with state and federal law.

An employee may face disciplinary action up to and including termination of employment if an employee transmits, without the Board’s permission, confidential information to or from the employee’s personal online account.

An employee may not be disciplined for failing to provide his/her username, password, or other authentication means for accessing a personal online account, failing to authenticate or access a personal online account in the presence of his/her supervisor or failing to invite his/her supervisor or refusing to accept an invitation sent by his/her supervisor to join a group affiliated with a personal online account, except as provided herein.

Personnel – Certified/Non-Certified

Freedom of Speech and use of Media, Including Social Media

Notwithstanding, the Board may require that an employee provide his/her username, password or other means of accessing or authenticating a personal online account for purposes of accessing any account or service provided by the Board for business purposes or any electronic communications device supplied by or paid for, in whole or in part, by the Board.

Nothing in this policy or regulations shall prevent the district from conducting an investigation for the purpose of ensuring compliance with applicable state or federal laws, regulatory requirements or prohibitions against work-related employee misconduct based on the receipt of specific information about an activity on an employee's personal online account or based on specific information about the transfer of confidential information to or from an employee's personal online account. During the course of such investigation, the district may require an employee to allow the district to access his or her personal online account for the purpose of conducting such investigation. However, the employee will not be required to provide his/her username and/or password or other authentication means in order for the district to access the personal online account.

Legal References:

U.S. Constitution, Amend. I

Conn. Constitution, Article I, Sections 3, 4, 14

Electronic Communication Privacy Act, 18 U.S.C. §§ 2510 through 2520

Conn. Gen. Stat. § 31-40x

Conn. Gen. Stat. § 31-48d

Conn. Gen. Stat. § 31-51q

Conn. Gen. Stat. §§ 53a-182; 53a-183; 53a-250

Personnel – Certified/Non-Certified

Acceptable Use of Computer Systems and Electronic Communications

Computers, computer networks, electronic devices, Internet access, and electronic messaging systems are effective and important technological resources. The Newtown Board of Education (the “Board”) has ~~installed~~ provided computers and a computer network(s), including Internet access and electronic messaging systems, on Board premises and may provide other electronic devices that can access the network(s) and/or have the ability to send and receive messages with an operating system or network communication framework. Electronic ~~D~~devices include but are not limited to personal computing devices, laptops, tablets, cellular phones, ~~S~~smartphones, network access devices, radios, personal cassette players, CD players, ~~tablets,~~ walkie-talkies, personal gaming systems, Bluetooth speakers, personal data assistants, and other electronic signaling devices. Electronic messaging systems include mobile, chat, and instant message; cloud collaboration platforms, including internal chat, peer-to-peer messaging systems, and draft email message transfer; and products that have the ability to create duration-based or subjective removal of content, such as Snapchat, and security focused platforms, such as Signal. The Board’s computers, computer networks, electronic devices, Internet access, and electronic messaging systems are referred to collectively as “the computer systems” and are provided in order to enhance both the educational opportunities for our students and the business operations of the district.

These computer systems are business and educational tools. ~~As such, they are made available to Board employees for business and education-related uses.~~ All users of the computer systems must restrict themselves to appropriate district-related educational and business purposes. The Administration shall develop regulations setting forth procedures to be used by the Administration in an effort to ensure that such computer systems are used for appropriate business and education-related purposes.

In accordance with applicable laws and the ~~A~~administrative ~~R~~regulations associated with this ~~P~~policy, the system administrator and others managing the computer systems may access electronic messaging systems (including email) or monitor activity on the computer system or electronic devices accessing the computer systems at any time and for any reason or no reason. Typical examples include when there is reason to suspect inappropriate conduct or there is a problem with the computer systems needing correction. Further, the system administrator and others managing the computer systems can access or monitor activity on the systems despite the use of passwords by individual users, and can bypass such passwords. In addition, review of electronic messaging systems (including email), messages or information stored on the computer systems, which can be forensically retrieved, includes those messages and/or electronic data sent, posted and/or retrieved using social networking sites, including but not limited to, Twitter, Facebook, LinkedIn, Instagram and YouTube.

Personnel – Certified/Non-Certified

Acceptable Use of Computer Systems and Electronic Communications

Incidental personal use of the computer systems may be permitted solely for the purpose of email transmissions and access to the Internet on a limited, occasional basis. Such incidental personal use of the computer systems, however, is subject to all rules, including monitoring of all such use, as the Superintendent may establish through regulation. Moreover, any such incidental personal use shall not interfere in any manner with work responsibilities.

Users should not have any expectation of personal privacy in the use of the computer system or other electronic devices that access the computer system. Use of the computer system represents an employee's acknowledgement that the employee has read and understands this policy and any applicable regulations in their entirety, including the provisions regarding monitoring and review of computer activity.

Legal References:

Conn. Gen. Stat. § 31-40x

Conn. Gen. Stat. § 31-48d

Conn. Gen. Stat. §§ 53a-182b; 53a-183; 53a-250

Electronic Communication Privacy Act, 18 U.S.C. §§ 2510 through 2520

Personnel – Certified/Non-Certified

Acceptable Use of Computer Systems and Electronic Communications

Introduction

The Board of Education (the “Board”) has ~~installed~~ provided computers and a computer network(s), including Internet access and electronic messaging systems, on Board premises and may provide electronic devices that can access the network(s) and/or have the ability to send and receive messages with an operating system or network communication framework. Electronic ~~D~~ devices include but are not limited to personal computing devices, laptops, tablets, cellular phones, ~~S~~ smartphones, network access devices, radios, personal cassette players, CD players, ~~tablets~~, walkie-talkies, personal gaming systems, Bluetooth speakers, personal data assistants, and other electronic signaling devices. Electronic messaging systems include mobile, chat, and instant message; cloud collaboration platforms, including internal chat, peer-to-peer messaging systems, and draft email message transfer; and products that have the ability to create duration-based or subjective removal of content, such as Snapchat, and security focused platforms, such as Signal.

The Board’s computers, computer networks, electronic devices, Internet access, and electronic messaging systems are referred to collectively as “the computer systems” and are provided in order ~~electronic devices~~, to enhance the educational and business operations of the district. In these regulations, the computers, computer network, electronic devices, Internet access and email system are referred to collectively as "the computer systems."

These computer systems are business and educational tools. As such, they are being made available to employees of the district for district-related educational and business purposes. *All users of the computer systems must restrict themselves to appropriate district-related educational and business purposes.* Incidental personal use of the computer systems may be permitted solely for the purpose of email transmissions and similar communications, including access to the Internet on a limited, occasional basis. Such incidental personal use of the computer systems is subject to all rules, including monitoring of all such use, set out in these regulations. Moreover, any such incidental personal use shall not interfere in any manner with work responsibilities.

While performing work-related duties and responsibilities, it is essential that all district employees remain alert, focused, and free from distractions. As such, with exception of very brief job/work related texts or cell phone calls necessary in the performance of their duties, or to address true personal emergencies involving an employee’s health or safety or the health or safety of the employee’s immediate family, use of cellular phones, whether district owned or privately owned, is prohibited during work hours.

Personnel – Certified/Non-Certified

Acceptable Use of Computer Systems and Electronic Communications

These computer systems are expensive to install, own and maintain. Unfortunately, these computer systems can be misused in a variety of ways, some of which are innocent and others deliberate. Therefore, in order to maximize the benefits of these technologies to the district, our employees and all our students, this regulation shall govern *all* use of these computer systems.

Safeguarding of the district's computer systems assigned to employees is the responsibility of the employee. It is also the employee's responsibility to report any loss or damage of the district's computer systems to the Director of Information Technology immediately upon discovery of the loss or damage.

All computer systems owned by the Board shall be returned to the district upon resignation/termination or whenever requested by the Superintendent of Schools. Restitutions (appropriate replacement value) may be made to the district for any damage (caused by other than normal wear and tear) done to the district's computer systems or if such computer systems are lost or stolen outside of school.

Monitoring

It is important for all users of these computer systems to understand that the Board, as the owner of the computer systems, reserves the right to monitor the use of the computer systems to ensure that they are being used in accordance with these regulations. The Board intends to monitor ~~in a limited fashion, but will do so as needed. to ensure that the systems are being used appropriately for district related educational and business purposes and to maximize utilization of the systems for such business and educational purposes.~~ The Superintendent reserves the right to eliminate personal use of the district's computer systems by any or all employees at any time.

The system administrator and others managing the computer systems may access electronic messaging systems (including email) or monitor activity on the computer system or electronic devices (including, but not limited to, voicemail messages, and text and picture messages) accessing the computer systems any time and for any reason or no reason. Typical examples include when there is reason to suspect inappropriate conduct or there is a problem with the computer systems needing correction. Further, the system administrator and others managing the computer systems can access or monitor activity on the systems despite the use of passwords by individual users, and can bypass such passwords. In addition, review of emails, messages or information stored on the computer systems, which can be forensically retrieved, includes those messages and/or electronic data sent, posted and/or retrieved using social networking sites, including, but not limited to, Twitter, Facebook, LinkedIn, Instagram and YouTube.

Personnel – Certified/Non-Certified

Acceptable Use of Computer Systems and Electronic Communications

Notwithstanding the above and in accordance with state law, the Board may not: (1) request or require that an employee provide the Board with a user name and password, password or any other authentication means for accessing a personal online account; (2) request or require that an employee authenticate or access a personal online account in the presence of a Board representative; or (3) require that an employee invite a supervisor employed by the Board or accept an invitation from a supervisor employed by the Board to join a group affiliated with any personal online account of the employee. However, the Board may request or require that an employee provide the Board with a user name and password, password or any other authentication means for accessing (1) any account or service provided by the Board or by virtue of the employee's employment relationship with the Board or that the employee uses for the Board's business purposes, or (2) any electronic communications device supplied or paid for, in whole or in part, by the Board.

In accordance with applicable law, the Board maintains the right to require an employee to allow the Board to access the employee's personal online account, without disclosing the user name and password, password or other authentication means for accessing such personal online account, for the purpose of:

- (A) Conducting an investigation for the purpose of ensuring compliance with applicable state or federal laws, regulatory requirements or prohibitions against work-related employee misconduct based on the receipt of specific information about activity on an employee's personal online account; or
- (B) Conducting an investigation based on the receipt of specific information about an employee's unauthorized transfer of the Board's proprietary information, confidential information or financial data to or from a personal online account operated by an employee or other source.

For purposes of these Administrative Regulations, "personal online account" means any online account that is used by an employee exclusively for personal purposes and unrelated to any business purpose of the Board, including, but not limited to, electronic mail, social media and retail-based Internet web sites. "Personal online account" does not include any account created, maintained, used or accessed by an employee for a business purpose of the Board.

Why Monitor?

The computer systems are expensive for the Board to install, operate and maintain. For that reason alone it is necessary to prevent misuse of the computer systems. However, there are other equally important reasons why the Board intends to monitor the use of

Personnel – Certified/Non-Certified

Acceptable Use of Computer Systems and Electronic Communications

these computer systems, reasons that support its efforts to maintain a comfortable and pleasant work environment for all employees.

These computer systems can be used for improper, and even illegal, purposes. Experience by other operators of such computer systems has shown that they can be used for such wrongful purposes as sexual harassment, intimidation of co-workers, threatening of co-workers, breaches of confidentiality, copyright infringement and the like.

Monitoring will also allow the Board to continually reassess the utility of the computer systems, and whenever appropriate, make such changes to the computer systems as it deems fit. Thus, the Board monitoring should serve to increase the value of the system to the district on an ongoing basis.

Privacy Issues

Employees must understand that the Board has reserved the right to conduct monitoring of these computer systems and can do so *despite* the assignment to individual employees of passwords for system security. Any password systems implemented by the district are designed solely to provide system security from unauthorized users, not to provide privacy to the individual system user.

The system's security aspects, message delete function and personal passwords can be bypassed for monitoring purposes.

Therefore, *employees must be aware that they should not have any expectation of personal privacy in the use of these computer systems.* This provision applies to any and all uses of the district's computer systems and electronic devices that access same, including any incidental personal use permitted in accordance with these regulations.

Use of the computer system represents an employee's acknowledgement that the employee has read and understands these regulations and any applicable policy in their entirety, including the provisions regarding monitoring and review of computer activity.

Prohibited Uses

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Acceptable Use of Computer Systems and Electronic Communications

Inappropriate use of district computer systems is expressly prohibited, including, but not limited to, the following:

- ◆ Sending any form of solicitation not directly related to the business of the Board of Education;
- ◆ Sending any form of slanderous, harassing, threatening, or intimidating message, at any time, to any person (such communications *may* also be a *crime*);
- ◆ Gaining or seeking to gain unauthorized access to computer systems;
- ◆ Downloading or modifying computer software of the district in violation of the district's licensure agreement(s) and/or without authorization from supervisory personnel;
- ◆ Sending any message that breaches the Board's confidentiality requirements, including the confidentiality rights of students;
- ◆ Sending any copyrighted material over the system;
- ◆ Sending messages for any purpose prohibited by law;
- ◆ Transmission or receipt of inappropriate email communications or accessing inappropriate information on the Internet, including vulgar, lewd or obscene words or pictures;
- ◆ Using computer systems for any purposes, or in any manner, other than those permitted under these regulations;
- ◆ Using social networking sites such as Facebook, Twitter, LinkedIn, Instagram and YouTube in a manner that violates the Board's Social Networking policy.

Personnel – Certified/Non-Certified

Acceptable Use of Computer Systems and Electronic Communications

~~[If the Board does not have a formal social networking policy, the last bullet may be revised as follows:~~

- ~~◆ Using social networking sites such as Facebook, Twitter, LinkedIn, Instagram and YouTube in a manner that disrupts or undermines the effective operation of the school district; is used to engage in harassing, defamatory, obscene, abusive, discriminatory or threatening or similarly inappropriate communications; creates a hostile work environment; breaches confidentiality obligations of school district employees; or violates the law, Board policies and/or the other school rules and regulations.]~~

In addition, if a particular behavior or activity is generally prohibited by law and/or Board policy, use of these computer systems for the purpose of carrying out such activity and/or behavior is also prohibited.

Electronic Communications

The Board expects that all employees will comply with all applicable Board policies and standards of professional conduct when engaging in any form of electronic communication, including texting, using the district's computer system, or through the use of any electronic messaging system or electronic device or mobile device owned, leased, or used by the Board. As with any form of communication, the Board expects district personnel to exercise caution and appropriate judgment when using electronic communications with students, colleagues and other individuals in the context of fulfilling an employee's job-related responsibilities, including when engaging in remote teaching or use of a digital teaching platform.

Disciplinary Action

Misuse of these computer systems will not be tolerated and will result in disciplinary action up to and including termination of employment. Because no two situations are identical, the Board reserves the right to determine the appropriate discipline for any particular set of circumstances.

Complaints of Problems or Misuse

Anyone who is aware of problems with or misuse of these computer systems, or has a question regarding the appropriate use of the computer systems, should report this to a district administrator or supervisor or to _____.

Personnel – Certified/Non-Certified

Acceptable Use of Computer Systems and Electronic Communications

Most importantly, the Board urges *any* employee who receives *any* harassing, threatening, intimidating or other improper message through the computer systems to report this immediately. It is the Board’s policy that no employee should be required to tolerate such treatment, regardless of the identity of the sender of the message. *Please report these events!*

Implementation

This regulation is effective as of __/__/__.

Legal References:

- Conn. Gen. Stat. § 31-40x
- Conn. Gen. Stat. § 31-48d
- Conn. Gen. Stat. §§ 53a-182; 53a-183; 53a-250

Electronic Communication Privacy Act, 18 U.S.C. §§ 2510 through 2520

NOTICE REGARDING ELECTRONIC MONITORING

In accordance with the provisions of Connecticut General Statutes Section 31-48d, the Board of Education hereby gives notice to all its employees of the potential use of electronic monitoring in its workplace. While the Board may not actually engage in the use of electronic monitoring, it reserves the right to do so as the Board and/or the Administration deem appropriate in their discretion, consistent with the provisions set forth in this Notice.

“Electronic monitoring,” as defined by Connecticut General Statutes Section 31-48d, means the collection of information on the Board’s premises concerning employees’ activities or communications, by any means other than direct observation of the employees. Electronic monitoring includes the use of a computer, telephone, wire, radio, camera, electromagnetic, photoelectronic, or photo-optical systems, and global positioning systems (GPS). The law does not cover the collection of information (A) for security purposes in any common areas of the Board’s premises which are open to the public, or (B) which is prohibited under other state or federal law.

The following specific types of electronic monitoring may be used by the Board in its workplaces:

- Monitoring of e-mail and other components of the Board’s computer systems, including monitoring of electronic devices such as PDAs, Smartphones, and mobile or handheld devices that access the computer systems, for compliance with the Board’s policies and regulations concerning use of such systems.
- Video and/or audio surveillance within school buildings (other than in restrooms, locker rooms, lounges and other areas designed for the health or personal comfort of employees or for the safeguarding of their possessions), on school grounds and on school buses and other vehicles providing transportation to students and/or employees of the school system.
- Monitoring of employee usage of the school district’s telephone systems.
- Monitoring of employee usage of the school district’s vehicles through the Global Positioning System (GPS).
 - Monitoring of employees when employees are engaging in remote teaching or use of a digital teaching platform.

The law also provides that, where electronic monitoring may produce evidence of misconduct, the Board may use electronic monitoring without any prior notice when the Board has reasonable grounds to believe employees are engaged in conduct that (i) violates the law, (ii) violates the legal rights of the Board or other employees, or (iii) creates a hostile work environment.

Questions about electronic monitoring in the workplace should be directed to the Superintendent.

Legal References:

Connecticut General Statutes:

Section 31-48b

Section 31-48d

10/2019

Bylaws of the Board**Methods of Operation**

The Newtown Board of Education shall concern itself only with broad questions of policy and not with administrative details. The Board shall rely upon the Superintendent of Schools to recommend policies for adoption and to administer policies enacted by the Board. Such policies shall be broad enough to indicate a line of action to be taken by the Superintendent in meeting a number of problems and jobs. Application of such policies to individual problems and jobs is an administrative function to be performed by the Superintendent.

Adopted: 6/5/12

**Please Note: these minutes are pending Board approval.
Board of Education
Newtown, Connecticut**

Minutes of the Board of Education meeting held on February 7, 2023, at 7:00 p.m. in the Council Chambers, 3 Primrose Street.

D. Zukowski, Chair	C. Melillo
J. Vouros, Vice Chair	A. Uberti
D. Ramsey, Secretary	T. Vadas
D. Cruson	1 Staff
J. Kuzma (left 8:13 p.m.)	1 Public
J. Larkin	
A. Plante	
K. Kunzweiler	
D. Godino (absent)	

Ms. Zukowski called the meeting to order at 7:04 p.m.

MOTION: Mr. Cruson moved that the Board of Education go into executive session for a legal consultation and invite Mr. Melillo and Mrs. Vadas. Mr. Ramsey seconded. Motion passes unanimously.

Item 1 – Executive Session

Executive session began at 6:31p.m. and ended at 6:59 p.m.

Item 2 – Pledge of Allegiance

Item 3 – Consent Agenda

MOTION: Mrs. Larkin moved that the Board of Education approve the consent agenda which includes the correspondence report. Mr. Ramsey seconded. Motion passes unanimously.

Item 4 – Public Participation

Item 5 – Reports

Chair Report: Ms. Zukowski commented on finishing the budget meetings and getting back to the regular meetings again.

Superintendent's Report: Mr. Melillo reported that he has attended some of the sports games as well as the SWC Cheerleading Championships. Pipes burst at the high school on Sunday which caused extensive damage. He was proud of the administration, teachers, facilities and custodial staff who worked nonstop Monday until the end of today. We will open tomorrow with seven classrooms closed. All inspections indicated it was safe to open. The Town also offered help from Public Works.

Committee Reports:

Mr. Cruson reported that the Policy Committee met January 25 and discussed the policies on the agenda. They also discussed the policy on protected classes and the suspension and expulsion policy.

Mr. Ramsey said the Communication Subcommittee met February 6 and reviewed our assignments for the next newsletter regarding the budget process. They also discussed modernizing the district website, the Blackboard form of communication, and school calendar regarding professional development days.

Mrs. Kuzma reported that the Social Emotional Health and Wellness Subcommittee met February 1. Anne Dalton provided an update on Wellness Week and we discussed the

Anonymous Alert APP. Mrs. Dalton also gave an update on the Center for Empowerment giving presentations at schools.

Mrs. Larkin suggested the schools go over how to use this app with the students.

Mr. Melillo agreed.

Mr. Cruson noted he was at Head O'Meadow twice and met with the principal regarding the budget season and see Mrs. Danenberg who was retiring. He also attended a PTA meeting with Mrs. Dreger the new lead teacher where they discussed transportation and the budget. He attended the CAFE Board of Directors retreat in Hartford. Sheila McKay took over as executive director after Bob Rader retired. There is also a webinar coming up regarding an African American/Black and Puerto Rican/Latino Course of Studies.

Student Representative Report:

Ms. Kunzweiler said semester two was underway. January 24 "Choir Palooza" was hosted at the high school. The National English Honor Society is raffling off themed baskets to raise funds for the literary organization First Readers. The National Honor Society hosted a pet food drive and donations were given to the Catherine Violet Hubbard's Senior Pay Project. Athletics continue to have a successful winter season. Students are excited to be back tomorrow.

Item 6 – Presentations

Update on Learning Walks:

Kara DiBartolo provided an update on learning walks of which there were 110 since the start of school.

Mrs. Larkin asked what was being done before these walks began.

Mrs. DiBartolo said they were put into place prior to Covid. Reed has been doing their own rounds. All administrators are on board having teachers visit each other.

Mr. Melillo said he and Mrs. Uberti had the same vision and feels it's beneficial for central office to be involved in the walks.

Mrs. Larkin appreciated empowering people in the school level and asked what areas needed improvement.

Mrs. DiBartolo said teachers are looking at passive engagement and active engagement and what we are providing our students to lift levels of rigor and relevance.

Mr. Melillo said the hardest thing for a teacher is to give up control. Learning involves questioning, conferring, having a dialogue and that's hard for teacher to build in a classroom. We've noticed a Covid lag around instruction.

Mr. Vouros noted that these walks were started prior to the tragedy and then everything stopped. The complexion of these changes from elementary to Reed to the middle school and to the high school. It's very exciting to see it unfold.

Mr. Ramsey complimented the teachers involved and asked how often they are in the schools.

Mrs. DiBartolo said some weeks we are in two schools in one day and in some just one day per week. It varies.

Mr. Melillo has seen some high level work in ELA classes. We look at material teachers need and make data driven decisions for improvement.

Item 6 – Old Business

Strategic Plan Update:

Mr. Melillo reported that on January 23 the committee developed an understanding of the purpose and importance of a portrait of the graduate and began to identify skills, competencies and dispositions most important for Newtown graduates. We set up focus groups for staff, families, community and Board members. The first community group met virtually January 30 and February 2. February 6 the committee discussed next steps in creating the portrait of the graduate, reviewed stakeholder engagement data, and discussed an assignment before the next meeting. He asked that between now and March 8 that each school finds a way of engaging its faculty in the portrait of the graduate discussion.

Item 7 – New Business

Superintendent's Mid-Year Goals:

Mr. Melillo spoke about his four goals. Goal #1 is his entry plan, which is completed. Goal #2 is the strategic plan and portrait of the graduate which are moving forward.

Goal #3 is instructional rounds which involves collecting data and making decisions. They plan to invite other stakeholders to the table with the end game being having students reach their highest potential. Goals #4 is the budget process which we've done with a budget that enhances our instructional core.

Mrs. Plante said Mr. Melillo has done an excellent job keeping the Board informed through this journey and has done a good job giving us transparency, which is much appreciated.

Mr. Ramsey complimented Mr. Melillo on his efforts to keep a good learning environment.

Mrs. Larkin also complimented him for all he does which is much more than what he mentioned tonight and that people are glad he's here.

Ms. Zukowski has heard very positive comments and that he has done a great job.

March 22 Newtown High School Early Dismissal:

Mr. Melillo said this is the second year the high school will proctor the digital SAT to juniors and the PSAT to sophomores. Both tests will end 12:30 and the tests for students with extended time will end by 2:30 p.m. Those students will take the middle school bus home. There are also a number of teachers needed for students who need different environments during testing. Seniors will stay home and work on college applications, capstone and scholarship applications. Freshmen will go to the NYA and the Community Center for an anti-vaping panel, debrief, and activities.

Mrs. Larkin said that regarding seniors being home, not everyone is college bound and she requested he revisit the activities for the seniors.

Mr. Melillo would make sure they have other activities but all students do the capstone project.

MOTION: Mrs. Larkin moved that the Board of Education approve the March 22 high school early dismissal. Mr. Vouros seconded. Motion passes unanimously.

First Read of Policies:

Mr. Cruson noted that Policy 4118.12/4218.12 Freedom of Speech and Use of Media Including Social Media was previously under freedom of speech but was updated to include social media. Policy 4118.5/4218.5 Acceptable Use of Computer Systems and Electronic Communications was discussed with Suzanne D'Eramo and Dennis Colclough and arrived at this policy to cover staff. Policy 9300 Methods of Operation is being rescinded because it's a duplicate of Policy 9311 which was approved in 2019.

Approval of Minutes:

MOTION: Mrs. Larkin moved that the Board of Education approve the minutes of January 17, 2023. Mr. Ramsey seconded. Motion passes unanimously.

MOTION: Mrs. Larkin moved that the Board of Education approve the minutes of January 19, 2023. Mr. Ramsey seconded. Motion passes unanimously.

MOTION: Mrs. Larkin moved that the Board of Education approve the minutes of the January 24, 2023 special meeting. Motion passes unanimously.

MOTION: Mrs. Larkin moved that the Board of Education approve the minutes of January 24, 2023. Mr. Ramsey seconded. Motion passes unanimously.

MOTION: Mrs. Larkin moved that the Board of Education approve the minutes of January 26, 2023. Mr. Ramsey seconded. Motion passes unanimously.

MOTION: Mrs. Larkin moved that the Board of Education approve the minutes of January 31, 2023. Mr. Ramsey seconded. Vote: 5 ayes, 1 abstained (Mrs. Larkin) Motion passes.

Item 9 – Public Participation

MOTION: Mr. Cruson moved to adjourn. Mr. Vouros seconded. Motion passes unanimously.

Item 10 – Adjournment

The meeting adjourned at 8:48 p.m.

Respectfully submitted:

Donald Ramsey
Secretary