Unit 2 Physics

Energy, Forces and the Earth's Crust

Thursday, October 14

Agenda

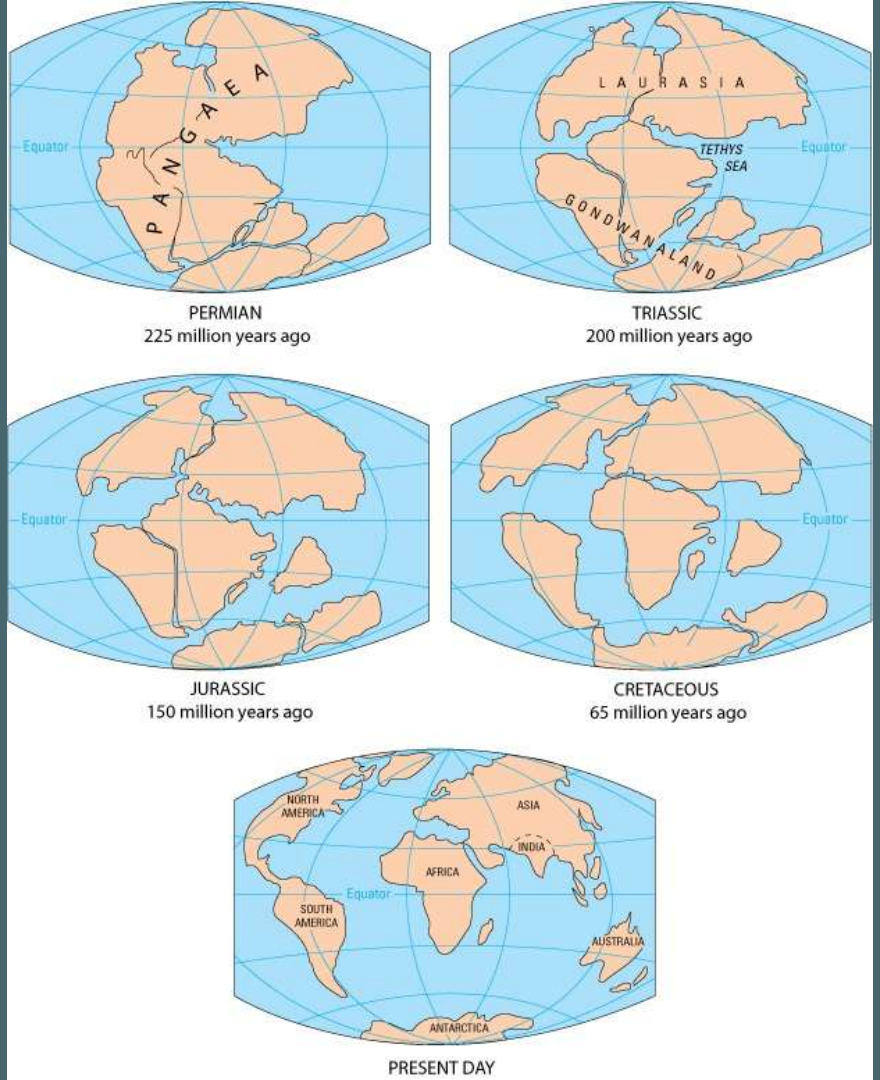
1. New Seats!
2. Unit 2 Materials
3. Unit 2 Phenomenon
4. Distance and Displacement Intro

Warm Up

Partner Intro

Reminders

- Turbine Reports need to be turned in ASAP!


PANGAEA
Equator
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Equator
CRETACEOUS
65 million years ago
NORTH AMERICA
ASIA
INDIA
AFRICA
Equator
SOUTH AMERICA
AUSTRALIA
ANTARCTICA
PRESENT DAY

Friday, October 15

Agenda

1. Hometown Activity
2. Class Conclusions
3. Turbine Project TURN IN

Warm Up

- Open up the hometown activity from yesterday
- Sit with your partner

Reminders

- Turbine Reports need to be turned in ASAP!

Class Conclusions

1. In a few sentences, describe the movement of Auburn Hills over the 750 million years of the simulation. Be sure to include movement in relation to the equator, overall location and changes to terrain.
2. What are the major movements of the plates that you noticed? Glaciers? Oceans?
3. If we wanted to determine the distance moved over time, how could we do this? What would we need to know more about the speed?

Monday, October 25

Warm Up

- Sit in your assigned seat!
- Look up on Google Maps (phone or device) the distance from your home to school.
- What direction do you live from school (north, south, east, west)
- If you were able to “fly” straight from home to school, would the distance be longer or shorter?

Agenda

1. Review New Schedule
2. Motion Basics Part 1
3. Motion Basics Lab

Reminders

- **Last day to turn in Turbine Projects is today.**
- Motion Basics and Kinematics Assessment **next Thursday.**

Scalar vs. Vector

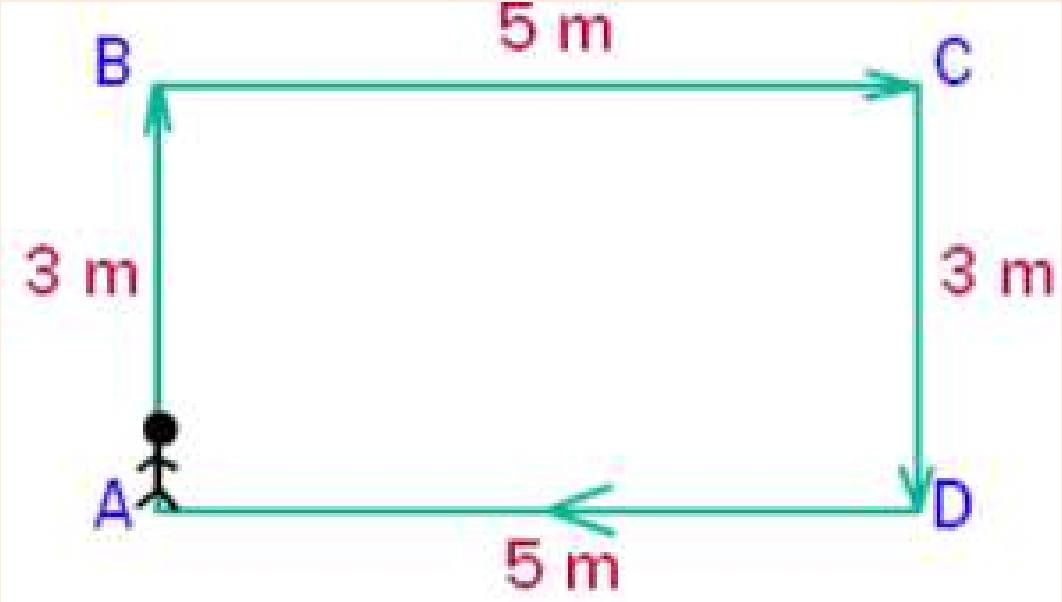
Scalar vs. Vector

- 10 mph
- 20 m/s east
- +70 miles
- 70 miles
- -70 miles
- 100 km 34 degrees SE

Distance vs. Displacement

Practice

1. A -> B
2. A -> B -> C -> D
3. A -> B -> C -> D -> A
4. A -> D -> C -> B
5. A -> D
6. A -> D -> C



Motion Basics Lab

All Scenarios
Parts a-d each

Tuesday, October 26

Warm Up

If you were to walk 10 m north, 2 m west, 2 m east and 20 m south, what is your distance? Displacement? Draw it out!

Agenda

1. Motion Basics Part 2
2. Motion Basics Lab
3. Practice Packet Pages 1-3

Reminders

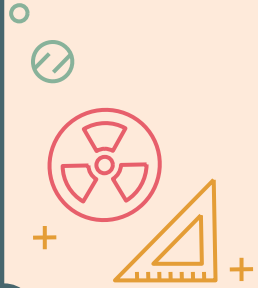
- Motion Basics and Kinematics Assessment **next Thursday.**

Warm Up Answer

- Distance: 34 m
- Displacement: 10 m south

Speed and Velocity

Average Speed = distance / time -> scalar
Average Velocity = displacement / time -> vector (direction)



Practice

- You walk 2 miles north, 3 miles south in 3 hours total.
  - What is your distance?
  - Displacement?
  - Speed?
  - Velocity?

Practice Answers

- You walk 2 miles north, 3 miles south in 3 hours total.
  - What is your distance? 5 miles
  - Displacement? 1 mile south
  - Speed? 5 miles/3 hours = 1.6 mph
  - Velocity? 1 mile/3 hours = 0.33 mph south

- Motion Basics Lab
  Scenarios 1-4 a-f
- Practice Packet Pages 1-3

Wednesday, October 27

Warm Up

- Take out your Motion Basics Lab from yesterday
- What did you notice about your speeds and velocities? Were they ever the same?

Agenda

1. Kinematics 101
2. Horizontal Kinematics Class/Partner Practice

Tomorrow is a half day!

Reminders

- Motion Basics and Kinematics Assessment **next Thursday.**

Kinematics 101

Practice Problem

A person on roller skates start from rest and accelerates to reach 3.6 m/s over 3 seconds. What is their acceleration?

Practice Problem

A car is traveling at 20 m/s and sees a red light so they slow down at a rate of -3 m/s/s. How much distance did they cover?

Partner Practice

1. A dog sees a squirrel and runs towards it over a distance of 30 m in 10 seconds. What is acceleration of the dog?
2. An object is pushed with an initial velocity of 3 m/s and rolls across a table to a stop over 1.2 m. What is the acceleration of the object? How long does it take to stop?
3. If a person starts from rest and runs 100 m in 20 seconds, what is their acceleration? Final Velocity?

Thursday, October 28

Warm Up

Agenda

1. Horizontal Practice
- Partner Problems

Reminders

- Motion Basics and Kinematics Assessment **next Thursday.**

Hour 2 Xello!

- We have 6 more students to go :)
- Complete the task(s) I tell you to do.
- SHOW ME
- Email deanna.johnson@avondaleschools.org that you completed. She will send you a confirmation email if you are done. YOU HAVE TO DO THIS PART EVEN IF YOU ALREADY EMAILED HER.

Partner Practice

1. A dog sees a squirrel and runs towards it over a distance of 30 m in 10 seconds. What is acceleration of the dog?
2. An object is pushed with an initial velocity of 3 m/s and rolls across a table to a stop over 1.2 m. What is the acceleration of the object? How long does it take to stop?
3. If a person starts from rest and runs 100 m in 20 seconds, what is their acceleration? Final Velocity?

Practice Packet Pages 5-6

Check your work!

Friday, October 29

Warm Up

- A ball is dropped a building. Gravity is -9.81 m/s/s. It takes 0.78 seconds to hit the ground. Draw it out! What is the height of building?

Agenda

1. New Calendar
2. Vertical Kinematics
3. Exit Ticket
4. Practice Packet

Reminders

- Motion Basics and Kinematics Assessment **next Thursday.**

Vertical Motion Basics

Practice Problems (Going Down)

1. A ball is dropped from a building that is 110 m tall. What is the final velocity when it hits the ground? How long does it take to hit the ground?
2. The same ball is now thrown down with an initial velocity of 8 m/s. What is the final velocity when it hits the ground? How long does it take to hit the ground?

Exit Ticket!!!!!
Turn it in to me :)

1. A person is running at 4 m/s at accelerates to 6 m/s over 7 seconds. What is their acceleration?
2. A ball is dropped from your hands and dropped 1m. What is the final velocity?

Monday, November 1

Agenda

1. Warm Up
2. Vertical Kinematics Up and Down
3. Practice Packet

Warm Up

- A ball is thrown upwards at 4 m/s from your hand and then caught in your hand at the same height.
  - Draw it out.
  - What is the velocity at the top?
  - What is the acceleration?

Reminders

- Motion Basics and Kinematics Assessment **Thursday.**

Practice Problems (Up and Down)

- A ball is thrown upwards from your hand with an initial velocity of 4 m/s.
  - Draw the situation.
  - How long will it take to reach the top?
  - How high does the ball go?
  - If you catch it at the same height it was released from, what is the total time in the air? Total distance traveled? Displacement? Final velocity?

Practice Packet Pages 7 and 8

Check your work!

Wednesday, November 3

Warm Up

A ball is thrown upwards from your hand with a velocity of 2.4 m/s. Determine the time it takes to reach the top and how high it goes.

Agenda

1. Warm Up
2. Review Calendar and Final
3. Class Leaders
4. White Board Review

Reminders

- Motion Basics and Kinematics Assessment **Thursday.**

Calendar, Class Leaders and Expectations

- 3 Class Leaders per hour: helps to make sure the class is on task- indicate on the quiz tomorrow if you'd like to be a class leader and why
- Students are following the daily calendar posted on Google Classroom and all materials on Google Classroom
- All in class assignments are posted as materials on Google Classroom
- Students are completing all work to prepare for the assessments

What is the final?

- A reassessment of standards from Semester 1. YOU CHOOSE what to reassess.
- Anything with a 3.5 or under can reassess.
- You will ALL participate in a review the week before created by students. More information to come closer to finals.
- **Only seniors with an A after the Unit 3 test can be exempt.**
- You must reassess at least 1 standard on the final. If you have all 4's, you will have a different prompt.
- Your grade cannot go down, only stay the same and go up.

White Board Practice

1. You walk 100 m north in 3 minutes, stop for 4 minutes and then walk south 300m for 10 minutes.
    a. Draw it out.
    b. Determine your distance, displacement, speed and velocity.
2. Create a situation where your distance and displacement are the same.
3. Create a situation where you have distance but no displacement.
4. What is the difference between distance and displacement? Speed and velocity?

White Board Practice

1. You from rest for 60 seconds and travel a distance of 300m. What is your acceleration? Final velocity?
2. A car sees a red light and slows down to a stop with an acceleration of -30 m/s/s. How much distance did the car travel? How much time did it take?

White Board Practice

1. You start from rest for 60 seconds and travel a distance of 300m. What is your acceleration? Final velocity?
2. A car sees a red light and slows down to a stop with an acceleration of -30 m/s/s over 200m. What is the initial velocity?

White Board Practice

1. A ball is dropped off a building and it takes 5 seconds to hit the ground. What is the height of building?
2. The same ball is thrown downward from the same height (you just found) but it takes 4 seconds to hit the ground. What is the initial velocity?
3. If you throw a ball straight up in the air, what is the velocity at the top? Acceleration? Velocity when you catch it?

Practice Packet
Pages 1-8

Motion Quiz!

- You need your kinematics sheet, notebook, pencil and calculator.
- You cannot use your device!
- All work is done on a seperate sheet of paper.
- Do not rewrite the question on the sheet of paper
- Show all work, all variables, units, equations used, etc.
- If you need help, please come up to me
- When done, turn it into the blue box on my desk.

Thursday, November 4

Warm Up

You your kinematics sheet, notebook (you are free to use it!) pencil and calculator. NO PEN :)

Agenda

1. Motion Quiz
2.

Reminders

- None!

Friday, November 5

Warm Up

- Open up the PhET Projectile Motion Lab Report on Google Classroom

Agenda

1. Make Up Tests
2. Return Motion Quiz
3. Review Unit 2, Unit 3 and Final
4. Class Leaders
5. Start PhET Projectile Motion

Reminders

- None!

Calendar, Class Leaders and Expectations

- Class Leaders
  - Helps sub if needed
  - Assists students who need help in class
  - Make sure the daily goal and date are on the board
- Students are following the daily calendar posted on Google Classroom and all materials on Google Classroom
- All in class assignments will be posted as materials on Google Classroom
- Students are completing all work to prepare for the assessments

What is the final?

- **A reassessment of standards from Semester 1. YOU CHOOSE what to reassess.**
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