8th Grade AMI Packet #13

AMI Day 13 - COPY THESE NOTES & READ THEM ALOUD 2 TIMES!!

* Unit 7 Exponents + Scientific Notation

exponents:

- $7 \cdot 7 \cdot 7 \cdot 7 \cdot 7 \cdot 7 =$ 7 × itself 5 times $= 7^5$ (base, exponent; Power (whole thing))
- $9.1 \times 9.1 \times 9.1 = 9.1^3 =$ 9.1 times itself 3 times

in calculator:

- 2^5 → hit 2 then [^] then the # 5, then enter.
  (ex) 2^5 = 32.
- $(\frac{1}{3})^2$ → hit frac button ' / then 3 then [^] 2
  (ex) (1/3)^2 = 1/9

Quick Review!! Slope is $y = mx + b$

there are 5,280 feet in 1 mile, so slope here is 5,280 meaning there are 5,280 feet per one mile.

$y = 5{,}280x$ (feet ↑, mile →)

Also slope is $\frac{y-y}{x-y}$; so (2,4) (6,7) has a slope of

$$\frac{4-7}{2-6} = \frac{-3}{-4} = +.75$$

Problems →

Write each expression as an exponent with a base

ex) 1) $7 \cdot 7 \cdot 7 \cdot 7 \cdot 7 = 7^5$

2) $-4 \times -4 \times -4 \times -4$

3) 1 times itself 14 times

4) $5 \cdot 5 \cdot 5 \cdot 5 \cdot 5 \cdot 5$

5) 1.4×1.4

6) $2 \cdot 2 \cdot 2$

7) Write out what 9^3 is.

8) Write out what $(-6)^5$ is.

9) Make one up for a guardian to try.

10) Make one up for a sibling (if they are too young or dont have one, test the skills of a pet) to try

Name: _____

Setting Worksheet 1

Directions: Read each passage and look for clues that reveal the setting. Then explain your answer. Remember the setting is the time and place that a story happens.

Alex shut the lid to his laptop with a loud clap. Some of the people sitting at the tables near him looked up from their books and gave him annoyed looks. Alex realized that he had disturbed them and held up his hand apologetically. The librarian turned toward him and shushed him loudly, perhaps louder than the noise that he had made. Alex put the laptop in his bag and began walking toward the door. He held his head down low.

1. Where is this story taking place? _____

How do you know?

2. When is this story taking place? _____

How do you know?

Vance Powers grabbed the control stick. Up until now he had been a prisoner on this spaceship, but even the captain knew that Vance was the only one who could navigate through an asteroid belt. "Quick! Take these laser cuffs off!" The captain and the guard looked at one another hesitantly. *Boom!* The ship skidded off a large asteroid. "Now! Take the cuffs off! There's no time!" Vance shouted at the men. The captain gave the guard a slight nod. The guard waved the magnetic key over the laser cuffs on Vance's wrists. The cuffs powered down and fell off of Vance's wrists. Suddenly Vance had full control of his arms again. Vance tested the movement of his arms by disarming the guard and slapping the laser cuffs on him in one swift motion. Vance Powers was back.

3. Where is this story taking place? _____

How do you know?

4. When is this story taking place? _____

How do you know?

Sir Anders frowned at his squire, Toby. Toby looked back worriedly. He was eager to please Sir Anders but he didn't know how. "Well, Toby, do you want me to put the saddle on myself?" A bolt of realization struck Toby. He grabbed a saddle of the wall and began apologizing, "Why of course not, Sir Anders. What was I thinking?" Toby awkwardly tried to get the saddle on Sir Ander's white stallion. "Let me just grabbed the belt here and uh… Ah!" Toby was muttering to himself when Sir Ander's horse turned suddenly and knocked him into a pile of hay. Sir Anders could not help but to crack a slight smile at this scene. As Toby brushed off the hay, Sir Anders consoled him, "He knows that you're scared, Toby. Grab the bridle off of the wall, help me remove my armor, and I'll show you how it's done."

5. Where is this story taking place? _____

How do you know?

6. When is this story taking place? _____

How do you know?

The party stopped at a small brook. The woman who was leading the party whispered, "Ok, if anybody's thirsty, this be a good time to drink. We keep moving from here to the next station." This wind blew through the thick trees. A young boy in the back of the party looked up at an older man and asked, "Is we really gonna be free?" The old man sighed, as if he could not believe it himself. "You see that star up dere? Dat's the North Star. We keep following that, and Miss Tubman up dere," he said gesturing to the woman leading the party. He continued, "We'll be free alright." The boy smiled, and then something else occurred to him. He looked up at the old man and said, "Well, what if we run into dem slave catchers?" The old man scratched his head and said, "Don't let'em catch you."

7. Where is this story taking place? _____

How do you know?

8. When is this story taking place? _____

How do you know?

"I want Sugar Loops!" Tommy screamed at his mother. She shook her head in distress and then responded, "Look, Tommy. That's not how you ask for anything, and we've already gone over this. You can have Bran Flakes or Dry Os. No Sugar Loops." Tommy shook his head back and forth violently. He then laid down on floor and started kicking his feet and screaming. Clearly he did not accept this answer. Mom grabbed her phone out of her purse. "Tommy, if you stop this tantrum and get back in the cart, I'll let you watch Tatakai Fighting Warriors on my phone." Tommy looked up excitedly and began gathering himself off of the floor. Mom put the box of Sugar Loops back on the shelf and tossed the Dry Os into the cart.

9. Where is this story taking place? _____

How do you know?

10. When is this story taking place? _____

How do you know?

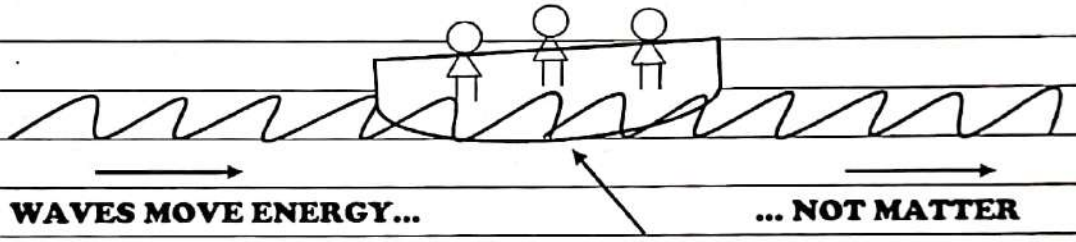
*** Use these notes for days 13 - 16 ***

WAVES

Wave – a repeating movement or disturbance that transfers energy through matter or space.

All waves carry energy without transporting matter from place to place.

- **Molecules pass energy along to neighbor molecules who then pass energy to neighbor**
- **All waves are produced by vibrations**
- **Waves will travel as long as there is energy to carry**



WAVES MOVE ENERGY... ... NOT MATTER

BOAT STAYS IN THE SAME PLACE.

Medium – matter through which a wave travels.

A medium can be solid, liquid, gas or combo of these.

Not all waves need a medium to travel – light and radio waves can travel through space.

Mechanical Waves – waves that can only travel through medium.

Transverse Waves	**Compressional Waves**
matter moves back and forth at right angles to direction that waves travel ∿∿∿	**matter in medium moves in the same direction that wave travels (symbol)**

Examples:

Transverse Wave: ∿∿∿∿

Compressional Wave: ||||||||||

~~Question: Which is faster, sound waves or light waves?~~

FEATURES OF WAVES

Parts of a Wave

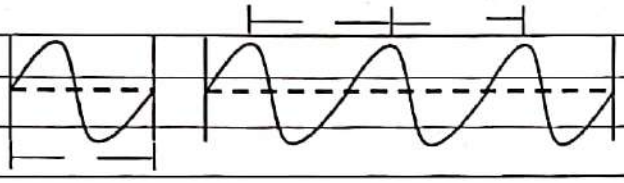
A B

Transverse waves have crests – the highest points, and troughs – the lowest points of waves

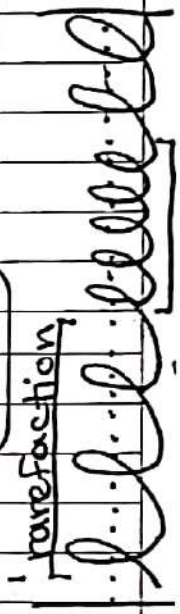
Compressional waves have dense regions (coils close together) called compressions and less dense regions called rarefactions.

2 1

C Wavelength (λ) – distance between one point on wave and similar point nearest to it (crest to crest, trough to trough, compression to compression or rarefaction to rarefaction)



Wavelength of wave decreases as frequency increases



Frequency – number of wavelengths that pass a fixed point each second (hertz - Hz)

Calculating Wave Speed

Wave speed (m/s) = frequency (Hz) x wavelength (m)

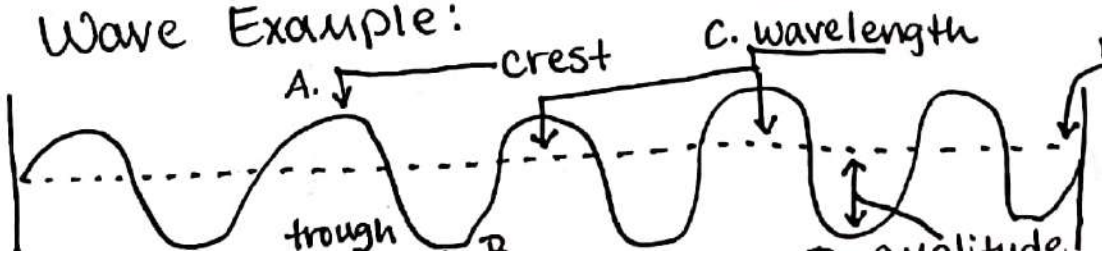
$v = f\lambda$

D Amplitude – a measure of energy in a wave; the more energy a wave carries greater amplitude

- Distance from crest or trough to normal position in transverse wave.
- The denser the compression the larger the amplitude in compressional wave.

transverse

Labeled Wave Example:



Question: What causes electromagnetic waves?

ELECTROMAGNETIC SPECTRUM

Electromagnetic Waves – made by vibrating electric charges and can travel through space.

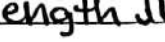
Frequency of electromagnetic waves is the number of vibrations per second (Hz)

Electromagnetic Spectrum – the entire range of electromagnetic wave frequencies

The Electromagnetic Spectrum includes:

- **Radio Waves – low frequency waves with wavelength of about 1 – 10 cm (radio stations, microwaves, radar)**
- **Infared waves – have slightly higher frequency than radio waves (remote control, warmth of fire, satellites)**
- **Visible Light – range of electromagnetic waves you can detect with your eyes (ROYGBIV – different colors have different wavelength)**
- **Ultraviolet Waves – frequencies slightly higher than visible light (sunburns, Vitamin D production, flurescent, materials absorb it, kills bacteria)**
- **X Rays & Gamma Rays – Ultra – high frequencies that can travel through matter, damage cells (bone images, radiation therapy, production of superhero - HULK)**

Low frequency = Longer Wavelength 

High frequency = Short Wavelength 

ROY G BIV = Red, Orange, Yellow, Green, Blue, Indigo (dark purple), Violet (light purple)

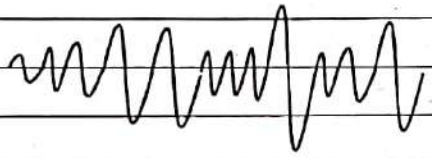
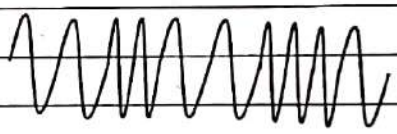
Question: What does "radar" stand for?

COMMUNICATING WITH RADIO WAVES

Radio transmission – radio converts electro – magnetic waves into sound waves.

Each radio station is assigned a particular radio frequency for their broadcast – this specific frequency is called the carrier wave.

Carrier waves can transmit a signal in one of two ways:

Amplitude modulation (AM)	Frequency modulation (FM)
	
AM radio broadcast info by varying the amplitude of the carrier wave.	FM radio varies the frequency of carrier wave.

Television – audio is sent by FM radio waves and video is sent by AM radio signals.

Cathode – ray tubes – produce images you see on TV – surface is covered by spots that glow red, green, or blue when struck by electron beams.

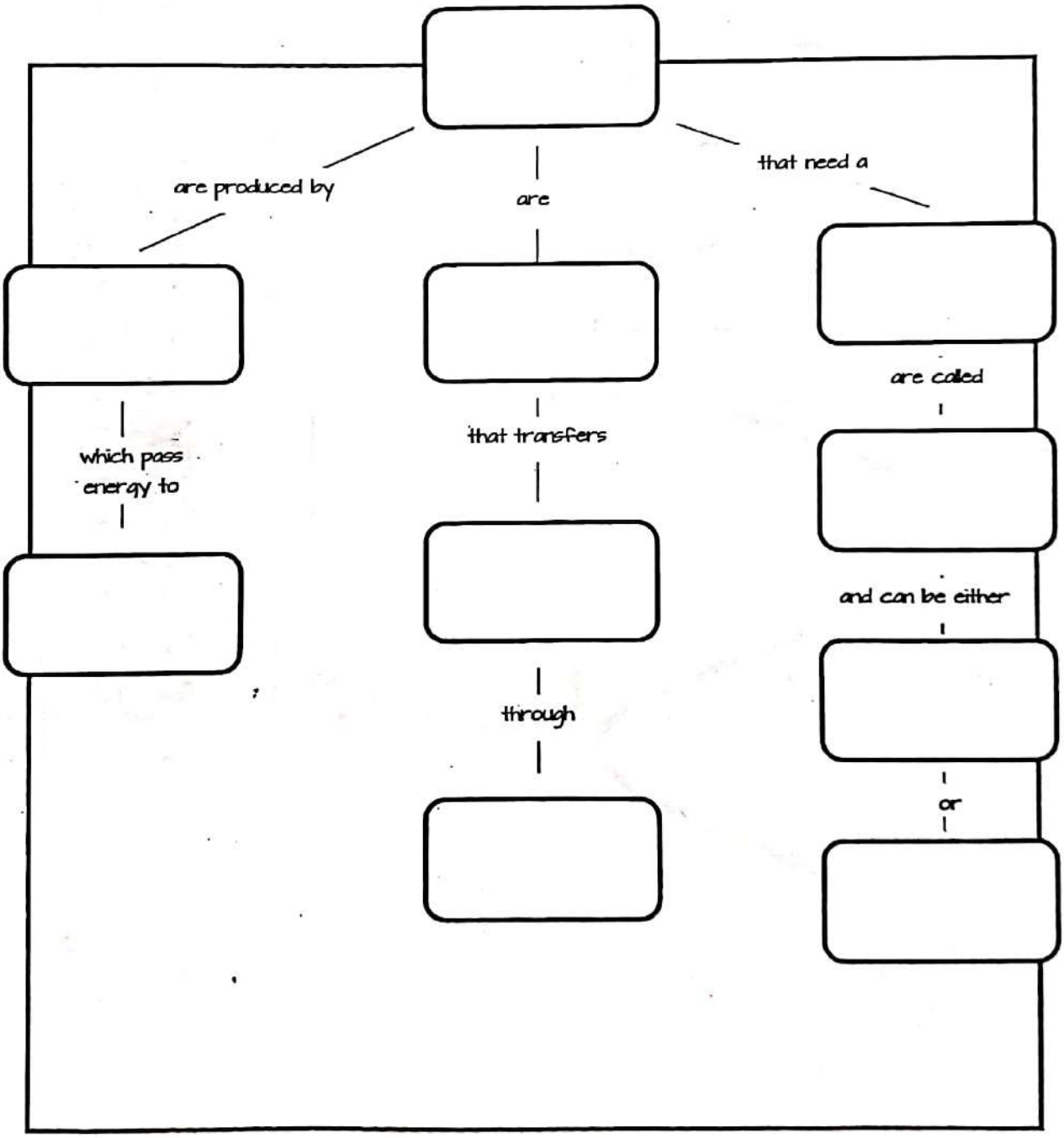
Telephone – electrical signal creates radio wave that is transmitted to and form a microwave tower.

Global Positioning System (GPS) – system of satellites, ground stations and receives that receive high freq microwave signals, amplify it and return it to Earth.

Day 13

WAVES: Using page 1 of the Waves Notes provided, fill in the blank on the concept map using the following terms or phrases.

Medium	Energy	Matter or Space	Mechanical
Vibrating Molecules	Waves	Repeating Disturbance	
Compressional	Transverse	Neighbor Molecules	



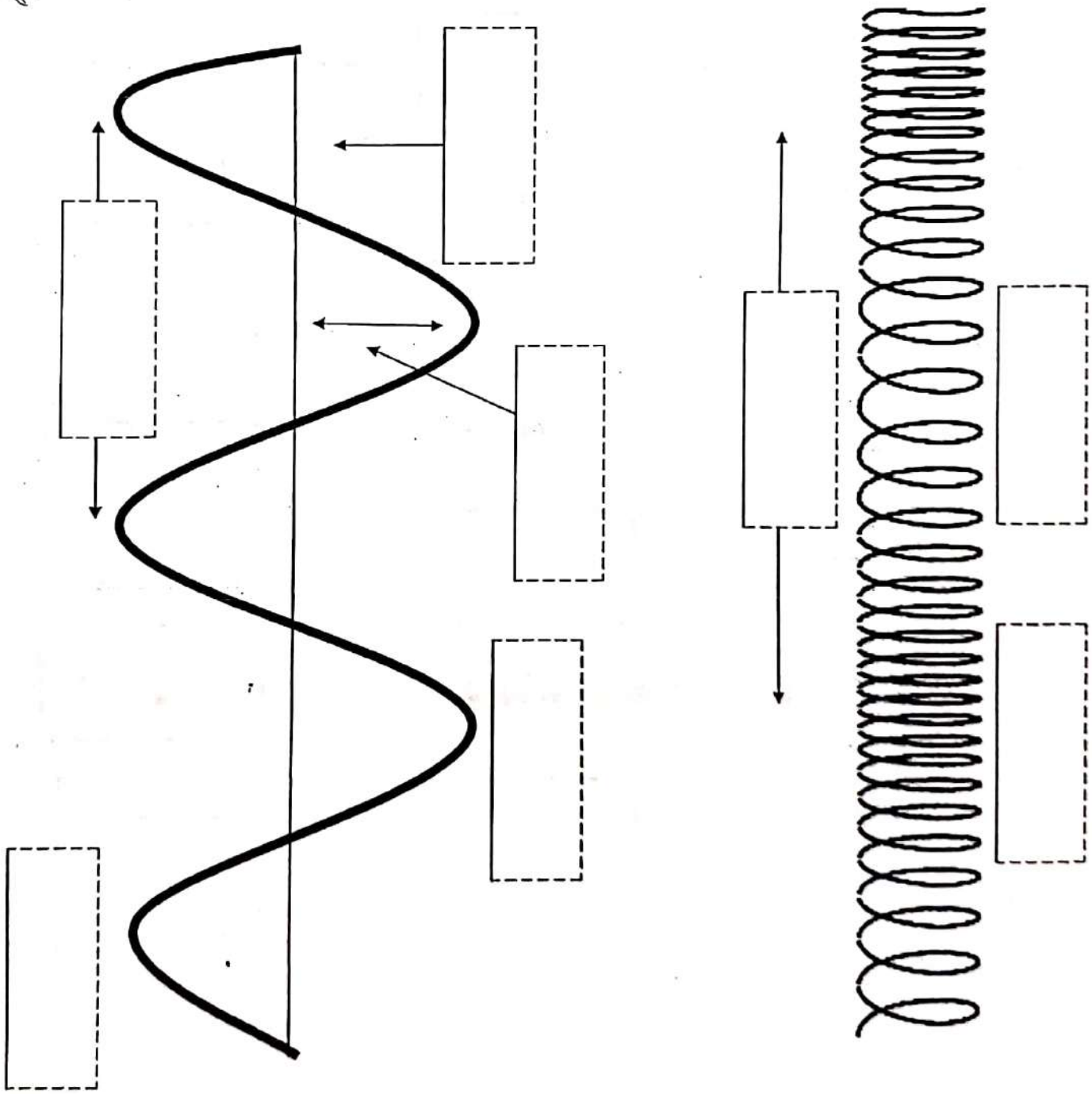
Day 13

FEATURES OF A WAVE: Using page 2 of the Waves Notes provided, fill in the blank labeling the parts of both types of waves using the following terms.

Wave Vocabulary:

Crest Wavelength Rest position Trough Amplitude

Compression Rarefaction



8th Grade Arkansas History AMI Day 13 (4/9/2020)

Directions: Use the reading passage on the next page to answer the following questions. The questions go in order with the passage. You do not have to write in complete sentences, but make sure you thoroughly answer each question.

Questions from **Politics, State Finances, and Protest Movements**

1. Which political party dominated the state's political life and controlled most state and local government throughout this period?

2. How did Governor Augustus Hill Garland typify the men who held the office for the next twenty-six years?

3. What were central issues in much of post-Reconstruction politics?

4. What were two state institutions that needed repairs, partly because of neglect during the 1860s?

5. What was the name of the system in which private contractors leased prisoners and the income from the leases went to pay for the expenses of the prison? What were conditions like for these prisoners?

6. What were two groups that emerged primarily from among the increasingly dissatisfied farmers of this period who wanted government to redress their growing problems?

7. What was the most important provision of the election law passed in 1891?

8. What did critics of the election law of 1891 contend that it was designed to do? Did it achieve that result?

Post-Reconstruction through the Gilded Age, 1875 through 1900

Politics, State Finances, and Protest Movements

These contrasting economic and social trends played a major role in determining the character of state politics during the Gilded Age. Throughout this period, the Democratic Party dominated the state's political life and controlled most state and local government. The assumption of power by Augustus Hill Garland as governor in 1874, bringing an end to the unrest of Reconstruction, marked the beginning of the new era. Garland typified the men who held the office for the next twenty-six years. He had been a Unionist before the war and a member of the Secession Convention in 1861 but had then gone on to serve in the Confederate Congress and become a fervent supporter of the Confederacy. Garland secured power in part because of his stand during the Civil War and his opposition to Republican state government during Reconstruction. Most of his successors played upon the same issues in reaching the governorship. William Read Miller, Confederate state auditor, followed Garland as governor in 1877 and served until 1881. Confederate General Thomas James Churchill became governor in 1881, Confederate veteran and amputee James Henderson Berry in 1883, Lieutenant Colonel Simon P. Hughes in 1885, and Lieutenant Colonel James Philip Eagle in 1889. William Meade Fishback ended this run of former Confederate officials in 1893. Fishback had been a wartime Unionist and a Republican, but he had become a Democrat and proved particularly popular among voters because of his desire to repudiate much of the state's debt.

The state's debt and state finances were a central issue in much of post-Reconstruction politics. The state debt had reached seventeen million dollars by 1875. Simply paying the annual interest on notes had given the government little discretionary money. This debt consisted of a variety of obligations, including levee and railroad bonds issued during Reconstruction. Among these were the Holford Bonds, state obligations sold to fund the outstanding debts of the state's prewar Real Estate Bank. At the same time that interest payments consumed much of its budget, other financial needs of the state had increased considerably. Partly because of neglect during the 1860s, state institutions such as the penitentiary and schools for the blind and deaf needed repairs. The state had to fund the public schools and colleges created during Reconstruction. Increasing competition with other states for investment capital required new agencies—such as the state's bureau of statistics and bureau of agriculture, mining, and manufacturing—to advertise the state's natural resources and economic advantages to encourage individuals, companies, and investors to come to the state.

The same leaders wanted the state to be a part of the national prosperity at the time, but that required spending for education and new agencies. On the other hand, they tried to make operations as inexpensive as possible. In the case of the state's prison, leaders tried to fund it by making it self-supporting. Private contractors leased prisoners (called the convict-lease system), and the income from the leases went to pay for the expenses of the prison. Conditions for these prisoners became so bad that the state considered ending the lease system, although plans for its replacement would have put the prisoners to work for the state rather than for outside contractors. The legislature provided minimal funds for education and left support for schools primarily to local school districts. The black population was particularly victimized by policies to keep costs

down. Even though they constituted twenty-eight percent of the overall population of Arkansas in 1900, black citizens received less money per capita for state services than whites. Officials kept costs low by providing them with second-class or no schools and other cut-rate services.

Other opposition movements emerged following the collapse of the Greenback Party in the early 1880s, the best known being the Agricultural Wheel and the Brothers of Freedom. These groups emerged primarily from among the increasingly dissatisfied farmers of this period who wanted government to redress their growing problems. These men embraced an agrarian program that urged the state government to take a greater role in the regulation of corporations. They wanted regulation of railroads, including control over passenger and freight rates. They also believed that railroads, financial institutions, expanding telegraph companies, and other such businesses were under-taxed. While sometimes appearing to accede to these agrarian demands, the legislature proved as attentive to corporate interests as to those of large landowners and generally gave the protestors little. It created a state railroad commission in 1883, for example, but gave it virtually no power to impose any of the desired regulations or to enforce those that existed. Such failures encouraged an increasing involvement of the protest groups in politics.

Rather than risk defeat, the legislature moved to reduce the agrarian threat by disfranchising many supporters of the movement. The legislature significantly changed the character of the state's electoral process with an election law passed in 1891. The most important provision of that law was to require illiterates to have their ballots marked by election judges. Critics contended that it was designed to intimidate poor white and black voters who could not read and write into not voting. The law achieved that result, reducing in particular large numbers of black voters who had provided the support that allowed fusion candidates to challenge Democratic control. Even though the 1892 gubernatorial campaign saw another vigorous contest, this time between the Democratic candidate, William M. Fishback, and the newly organized Populist Party's candidate, Jacob P. Carnahan, the number who went to the polls declined eighteen percent to only 158,876 voters. Fishback easily won the governorship. The 1892 election effectively ended third-party protest in Arkansas. Voter participation in the state's elections steadily declined thereafter. That election also marked the virtual disappearance of black politicians from state government until the 1960s. In 1891, the General Assembly still had eleven black members. In 1893, there were none. The General Assembly pushed for additional constraints on black voting after this. Its members placed an amendment creating a poll tax on the ballot in 1892, and it passed. The creation of a system of party primaries in the 1890s for practical purposes further disfranchised black voters, most of whom were Republicans. By the turn of the century, the Democratic primary decided who would win the general election, and black voters made little impact in the choice.

Source: https://encyclopediaofarkansas.net/entries/post-reconstruction-through-the-gilded-age-1875-through-1900-402/