Richard's Middle School

Physical Science 8th Grade Summer Work Packet

The Georgia Standards of Excellence for Science focus on science content as well as scientific practices. These practices include:

- Phenomenon
- Asking Questions
- Planning/implementing investigations
- Using mathematical and computational thinking
- Analyzing and interpreting data
- Constructing explanations/designing solutions
- Constructing a model
- Arguing from evidence
- Obtaining, evaluating, and communicating

The following activities are designed to give you a foundation for the science practices before you begin your physical science course next year.

Read the scenario below and answer the questions.

You return to school after winter break. You notice that there is a large dent in your locker that was not there before. You were not the first one in the building today. You see that the floors look cleaner than when you left. The locker next to yours has a book bag strap hanging out and appears to be jammed.

What questions could you ask about this observation? Your questions should include the words "how" or "why"?

What are at least two other observations that may help you answer your question?

Use the Claim, Evidence, Reasoning chart below to construct an argument for what happened.

Claim: Statement that expresses the answer to the question
Evidence: Information that supports the claim. Scientific data comes from observations in natural settings or controlled experiments, measurements, or valid scientific sources.
Reasoning: The justification that links the evidence to the claim. It explains why the evidence supports the claim.

What could you do to investigate this scenario further (conduct an experiment, gather more data, etc)?

Use the data table below to construct a graph and answer the questions.

A sample of gas was collected at 100 degrees Celsius and then cooled. The changes in the volume of the sample are shown below.

Temperature (°C)	Volume (ml)
100	200
90	180
80	160
60	140
40	120
20	100
10	80

Construct a line graph of the data below. MAKE SURE YOU LABEL THE X AND Y AXIS!

Title: _____

1. Extrapolate (extend the graph beyond measured data) to find out what the volume would be when the temperature is 5°C.

2. Can you describe the relationship that exists between the temperature and volume of a gas?

Use the data table below to construct a graph and answer the questions.

A group of students conducted an experiment where they rolled a ball down a ramp and measured how far across the floor it traveled. Below is the data they collected.

Type of Surface	Ceramic Tile	Wood	Shag Carpet	All Weather Carpet	Vinyl Flooring
Distance Ball Rolled (cm)	800	850	125	475	625

Use this data to construct a bar graph. DON'T FORGET TO LABEL YOUR X AND Y AXIS!

Title: _____

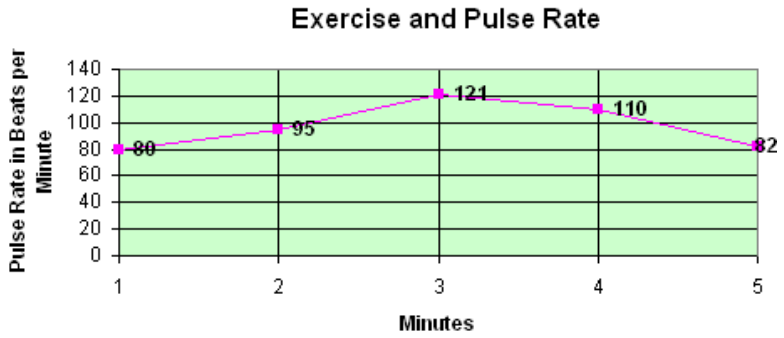
1. Which type of material allowed the ball to travel the farthest?

2. What materials make the ball roll between 125 cm and 525 cm?

3. What properties do the materials that allow the ball to roll the farthest have in common?

4. What inferences can be made about the properties of the materials and the distance the ball was able to roll?

Read the graph below to answer the following questions.



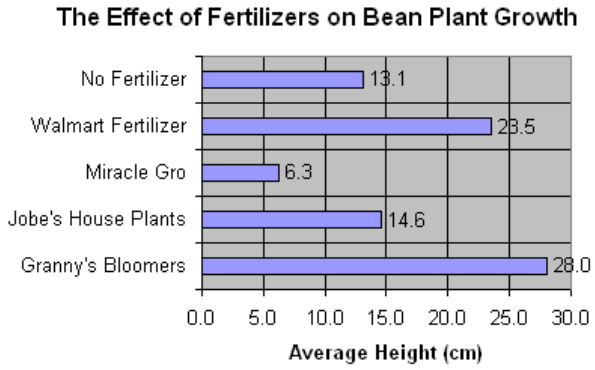
1. What pulse rate was recorded at 2 minutes?

2. At what time was the pulse rate over 90 beats per minute?

3. At what time was the pulse rate 110 beats per minute?

4. What inference can you make about exercise and pulse rate based on the data in the graph?

Read the graph below to answer the following questions.



1. How many items are being compared?

2. What is the average height of Jobe's House Plants?

3. Which fertilizers had an average height greater than 20cm?

4. Is it better to use no fertilizer or Miracle Gro?

5. What is the difference in height between Walmart Fertilizer and Granny's Bloomers?

6. What other evidence besides plant height might you need to support the claim that Granny's Bloomers is better than Miracle Gro?

Summer Data Collection and Analysis

Being able to collect and analyze your own data is an important part of developing science literacy skills. You will collect weather information over a period of time and use the information to construct a graph and draw conclusions.

Collect the weather information for Columbus Georgia June 2019. You can use the following site to gather the needed information:

https://weather.com/weather/today/l/31906:4:US

Record your data in the table below.

Date	High Temp (°F)	Low Temp (°F)	Date	High Temp (°F)	Low Temp (°F)
June 1			June 16		
June 2			June 17		
June 3			June 18		
June 4			June 19		
June 5			June 20		
June 6			June 21		
June 7			June 22		
June 8			June 23		
June 9			June 24		
June 10			June 25		
June 11			June 26		
June 12			June 27		
June 13			June 28		
June 14			June 29		
June 15			June 30		

Once you data has been collected, use the information to create a DOUBLE LINE GRAPH on the separate graph paper template. Then answer the following questions.

1. How many days was the high temperature above 90 degrees?
2. How many days was the high temperature above 85 degrees?
3. What day was the low temperature the lowest?
4. What day was the low temperature the highest?
5. What was the average high temperature and low temperature from June 1-7?
6. What was the average high temperature and low temperature from June 8-14?
7. What was the average high temperature and low temperature from June 9-21?
8. What was the average high temperature and low temperature from June 22-28?
9. What was the average high temperature and low temperature from June 28-30?
10. What was the average high temperature and low temperature for the month of June?
11. What patterns do you see in the graph as it relates to comparing high and low temperatures?

Title: _____