NEW HAVEN PUBLIC SCHOOLS

SCIENCE PRACTICE

GRADE 8
DIRECTIONS TO THE STUDENT:
- READ EACH QUESTION CAREFULLY
- THINK OF THINGS YOU HAVE DONE AND LEARNED
- PICK THE BEST ANSWER YOU CAN
- TALK ABOUT YOUR ANSWERS

1. Which is the best tool to measure the mass of salt added to a beaker of water?
   A) A ruler   B) A beaker   C) A balance   D) A spoon

2. Which is probably the most reliable or credible source of scientific information about a scientific issue, such as cloning?
   A) A presentation by a politician.
   B) An article in a scientific journal with results of research.
   C) A website from a college student.
   D) A talk radio show.

3. Students examined the ground under the oak tree and measured the intensity of the light (foot candles) in various plots. They recorded the number of dandelion and pine seedlings in each plot.
   Their findings are summarized in the chart below.

<table>
<thead>
<tr>
<th>Light Intensity in foot candles</th>
<th>Number of pine seedlings</th>
<th>Number of dandelion seedlings</th>
</tr>
</thead>
<tbody>
<tr>
<td>500</td>
<td>0</td>
<td>22</td>
</tr>
<tr>
<td>800</td>
<td>0</td>
<td>17</td>
</tr>
<tr>
<td>700</td>
<td>3</td>
<td>18</td>
</tr>
<tr>
<td>1200</td>
<td>14</td>
<td>19</td>
</tr>
<tr>
<td>1500</td>
<td>17</td>
<td>23</td>
</tr>
</tbody>
</table>

3. Which of the following is the most valid conclusion that can be drawn from the data in the chart?
   A) Dandelion seedlings grow better in shaded areas than in sunlight.
   B) Pine seedlings grow better in sunlight than in shaded areas.
   C) The light intensity affects the germination of both dandelion and pine seedlings.
   D) The light intensity doesn't affect the germination of dandelion and pine seedlings.

4. Which is the best estimate of the amount of blood in a typical human body?
   A) 100 milliliters   B) 6 liters   C) 1 quart   D) 10 cubic meters

5. A class wants to do an experiment to determine how fitness affects a person’s heart rate. Before they do the experiment they want to determine each person’s average resting heart rate as a control group. In order to do this they should:
   A) Take each person’s heart rate once at the beginning of class.
   B) Take each person’s heart rate several times during the week and average the results.
   C) Take each person’s heart rate once in the middle of class and average the results.
   D) Let each person measure their heart rate once whenever they want.
6. Another class decides to do an experiment to test their hypothesis that sleeping affects a person’s heart rate. Which is true about their hypothesis?

A) It is bad because it is not a fact.
B) It is good because it is testable.
C) It is bad because it is not accurate.
D) It is good because it is true.

7. Which of the following factors will increase your heart rate?

A) Exercising rapidly.
B) Sleeping quietly.
C) Yelling loud.
D) Eating fast.

8) A boy picks up a rock on the beach and puts it in his pocket to bring home. What is the best estimate of the mass of the rock?

A) 20 pounds  
B) 230 grams  
C) 10 kilograms  
D) 1 ounce

9. A class wants to do an experiment to determine how surface texture affects the weight it takes to slide a block off a table. Before they do the experiment they want to determine the average amount of weight it takes to slide blocks as a control group. In order to do this they should:

A) Determine the weight it takes to slide different blocks on a tabletop and average the results.
B) Determine the weight it takes to slide one block on a tabletop once.
C) Determine the weight it takes to slide one block on three different surfaces and average the results.
D) Determine the weight it takes to slide one block on a tabletop several times and average the results.

10. In an experiment to determine how the mass of a block affects the weight it takes to slide it off the table, which property should be graphed on the vertical y axis?

A) The weight it takes to slide it off the table.
B) The independent variable
C) The mass of the block.
D) The surface area of each block.
GROUP A conducted an experiment to test how the length of a bridge affects its strength. They constructed beam bridges with the same straw supports, with materials of different beam lengths, and tested the amount of weight it took to break the bridge.

Following is a table of their results:

<table>
<thead>
<tr>
<th>LENGTH of Bridge</th>
<th>3 cm</th>
<th>5 cm</th>
<th>6 cm</th>
<th>10 cm</th>
<th>15 cm</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEIGHT to break</td>
<td>20 grams</td>
<td>15 grams</td>
<td>10 grams</td>
<td>4 grams</td>
<td>3 grams</td>
</tr>
</tbody>
</table>

Use GROUP A’s results to answer the following questions:

11. Which is the most appropriate graph to display GROUP A's results?

A) 

B) 

C) 

D) 

12. Which is the most important property to keep the same that is missing from their data table?

A) Type of beam material for each bridge.
B) Who placed the weights in the cup.
C) Number of straws on the supports.
D) Shape of the supports.
13) A car travels 60 meters in 15 seconds. What is its speed?
A) 6 meters per second
B) 1.5 meter seconds
C) 4 meters per second
D) $\frac{1}{4}$ seconds per meter

14. A simple machine produces work which is force times distance. What is the work done by a simple machine that uses 5 Newtons of force to lift a block 10 meters?
A) 5 Joules  B) 2 Joules  C) 20 Joules  D) 50 Joules

15. An experiment is done to test how color affects the speed of a toy car. What is the independent variable in this experiment?
A) Speed  B) Distance  C) Time  D) Color

16. Kristin wants to find out which brand of paper towel holds the most water. She needs to create a fair test. What must she do to make sure her experiment is fair?
A) Use different amounts of water to test each paper towel.
B) Use hot water to test some paper towels and cold water to test other paper towels.
C) Use the same amount of water to test each paper towel.
D) Use maple syrup to test some paper towels and water to test other paper towels.

17. Which of the following tools would be most useful in determining the length and width of a school cafeteria?
A) scale
B) centimeter ruler
C) tape measure
D) thermometer

18. Two students each set up an experiment to compare the reaction times of boys and girls. For the experiment, they each dropped a ball and measured how fast different students caught it. Below are the results the students found:

Experiment Results
Student 1 The boys caught the ball faster.
Student 2 The girls caught the ball faster.

Since the results are very different, what is the next logical step?
A) throw out the results because they are incorrect
B) look for differences in the ways the experiment was done
C) conclude that neither boys nor girls have fast reaction times
D) conclude that girls and boys actually have the same reaction times
19. Four rods of equal thickness but made of different metals were tested with equal amounts of weight to see which was most flexible. Which of the following is the best way to report the results of this experiment?
A) a list of each type of rod used  
B) a sketch of each rod before testing  
C) a table showing how much each rod weighed  
D) a bar graph showing how much each rod bent

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20. The pans in this balance are at the same height. According to this information, the mass of the rock sample is

A) 170 grams  
B) 180 grams  
C) 200 grams  
D) 230 grams

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21) The pictures below show containers with water in them. Which container has 37 milliliters (mL) of water in it?

A)  
B)  
C)  
D)  

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22) To find out whether seeds grow better in the light or dark, you could put some seeds on pieces of damp paper and -

A) keep them in a warm, dark place  
B) keep one group in a light place and another in a dark place  
C) keep them in a warm, light place  
D) put them in a light or dark place that is cool

23) Students were building electric circuits. They had several D-cell batteries and a small nightlight bulb. They wondered what would happen to the brightness of the light bulb if they used more than one battery. Here are their results:

<table>
<thead>
<tr>
<th># of Batteries</th>
<th>Brightness of Light Bulb</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Very dim</td>
</tr>
<tr>
<td>2</td>
<td>Brighter</td>
</tr>
<tr>
<td>3</td>
<td>Brightest</td>
</tr>
</tbody>
</table>

Which of the following is a conclusion based on their data?:

A) Adding batteries makes light bulbs burn brighter.  
B) D-cell batteries last longer than C-cell batteries.  
C) Some brands of batteries are more powerful than others.  
D) D-cell batteries don't have enough energy to light a bulb.

24) While observing birds in the neighborhood, Tim noticed that the birds pecking in the grassy areas had different beaks than the birds feeding at the bird feeder.

Which of the following is a question he can investigate with an experiment?

A) Why do birds fly south in winter?  
B) What beak type do most seed-eating birds have?  
C) How do birds learn to eat?  
D) What material are bird beaks made of?

25) Terry tested four rocks to see how hard they are. He rubbed each of them against hard steel for one minute. He drew pictures of what they looked like before and after he rubbed them. Which rock is the hardest?
26. In order for energy to flow through this food web from the sun to the yellow perch, the perch must

A) Eat pond grass and algae
B) Eat the valve snail or the mosquito larva
C) Go through the process of photosynthesis
D) Live in warmer areas of its habitat

27. Each living thing in a food chain plays a role in the flow of energy in an ecosystem. Below is a picture of a simple food chain. The rabbit eats the carrot and the fox eats the rabbit.

What is the primary role of the rabbit in this food chain?

A) To form a habitat
B) To find space to live
C) To be a source of water
D) To be a source of energy
28. If all of the fish were removed from this food web, which animal population would most likely decrease first?

A) Turtles    B) Mosquito larvae    C) Dragonfly larvae    D) Pelicans

29. If the sun’s light no longer reached the habitat pictured below, which would probably happen first?

A) Grass would die
B) The lake would dry up
C) The number of fish in the lake would increase
D) Large animals would grow even larger

30. What happens to the molecules of a liquid when it is cooled?

A) The molecules slow down and come together
B) The molecules move faster and come together
C) The molecules move faster and spread apart
D) The molecules move faster and change to a solid
31) When the sun’s energy warms our air, the air will
A) Expand and therefore allow more water vapor to enter the air
B) Contract and therefore force more water vapor out of the air
C) Neither expand or contract
D) Turn into a liquid

32) The map below shows weather conditions on a single day in the United States.

Which two types of precipitation are occurring?
A) high tides and low tides
B) rain and snow
C) sleet and hail
D) cloudy and sunny

33) A sea breeze from the sea forms when
A) air over the sea becomes warmer at night
B) the pressure lowers over the sea
C) pressure difference pushes warm air inland
D) coastal land is warmer than nearby water

34) If the barometric reading is falling, and the humidity is increasing, what type of weather is most likely going to occur soon?
A) colder, wetter weather
B) possibly warmer weather with no clouds and fair skies
C) Colder, dryer weather
D) warmer, with nimbus clouds and precipitation

35) The most probable weather in an area covered by a warm front is
A) continued cool, dry weather
B) a thunderstorm
C) a tornado
D) steady, prolonged rainfall

36) What type of storm system is usually found only along a cold front?
A) A Hurricane
B) El Nino
C) A tornado
D) A snowstorm

37) The force that generates wind is
A) Coriolis force
B) friction
C) pressure gradient
D) uneven heating of the earth
38) Where is fresh, drinkable water NOT found?
   A) on the surface of the land
   B) frozen in glaciers
   C) below the surface
   D) In the ocean

39) Which is NOT a method to purify surface and ground water?
   A) filtration
   B) chemical treatment
   C) freezing
   D) bacterial digestion

40) A farm that uses fertilizer is built near a river. Which is a likely effect that degrades
    water quality?
   A) Runoff
   B) Soil Erosion
   C) Direct waste discharge
   D) Blockage of sunlight

41) The diagram below shows a girl in a wheelchair using a ramp to enter a
    building.

   ![Diagram of a ramp]

   The ramp she is using is an example of which simple machine?
   A) pulley
   B) lever
   C) wheel
   D) inclined plane
42) Base your answers to questions 42 through 44 on the information and diagrams below.

In diagram 1, a man is lifting a heavy box into a truck. In Diagram 2, the same man is using a ramp to move the same box into the same truck.

42) Which type of simple machine is the ramp in diagram 2?
A) pulley
B) inclined plane
C) lever
D) wheel

43) Why is it easier for the man to move the same box using the ramp?
A) He uses less force.
B) He moves the box a shorter distance.
C) The box is lighter.
D) The truck is lower.

44) It would be easier to move the box if the surface of the ramp was smoother because there would be less
A) friction
B) gravity
C) mass
D) volume

45) When a sled is on top of a hill, about to come down it has this type of energy:
A) Potential
B) Heat
C) Kinetic
D) Electric

46) Where on a sled's trip down the hill does it have the highest kinetic energy?
A) Top
B) Middle
C) Bottom
D) After it hits the tree :(
47) Solids have a definite shape and volume. This can be explained because

A) the molecules in solids move past each other easily.
B) the molecules in solids stay in a definite location and vibrate.
C) the molecules in solids move freely in all directions.
D) the molecules in solids do not move at all.

48) Mike thinks that he can turn copper into gold. He mixes a small amount of gold with a large amount of copper and heats them up until they melt. What do you think has happened?
A) All the copper has turned into gold.
B) Some of the copper has turned into gold.
C) The copper has not changed into gold. It’s just a mixture of gold and copper.
D) Copper and gold have turned into something completely new.

49. Which is true about salt water?
A) It is denser than plain water.
B) It can never be separated into salt and water.
C) It can be used to clean clothes, because it has chlorine in it.
D) Humans can breathe water, because it has oxygen in it.

50. Which element is explosive, very light, but found in most living things?
A) Oxygen
B) Carbon
C) Hydrogen
D) Iron

51) A solid rubber ball sinks when placed in water. What will happen if the ball is cut in half and one of the smaller pieces is placed underwater?
A) The smaller piece will rise.
B) The smaller piece will sink.
C) The smaller piece will stay motionless.
D) The smaller piece will dissolve.

52. A student dipped a strip of aluminum and a strip of iron into water. The student then exposed the strips to air for one week. What was most likely observed one week later?
A) The iron strip formed rust.
B) The aluminum strip formed rust.
C) Both of the metal strips formed rust.
D) Neither of the metal strips formed rust.
53. A student is separating a mixture of sand, salt and iron. Which process does NOT use the physical properties of the substances to separate the mixture?
A) Using a magnet to remove the iron.
B) Using filtering to remove the sand from saltwater.
C) Using evaporation to remove salt from water.
D) Using particle size to remove the sand and salt.

54. Which organelle is responsible for regulating the flow of water into and out of the cell?
A) Nucleus
B) Cell wall
C) Mitochondrion
D) Cell membrane

55. The diagram below shows a cell. Where would this cell most likely be found?

A) Human  B) Frog  C) Soil fungus  D) Leaf

56. Single-celled organisms can reproduce and create cells exactly like themselves without combining genes from two different parent cells. When they do this, they use a type of:
A. asexual reproduction.
B. natural selection.
C. gamete formation.
D. sexual reproduction.

57. Color blindness is a sex-linked gene. Males are more likely to be color blind than females because color blindness is
A) dominant in one sex and recessive in the other.
B) influenced by the hormones present in the individual
C) carried only on the X-chromosome and the male has only one X-chromosome.
D) carried only on the Y-chromosome and the female does not have a Y-chromosome.
58. A partial diagram of a reproductive process is shown below.

Which of the following labels belongs in the oval marked X?
A) egg   B) zygote   C) sperm   D) fetus

59. In multicellular organisms, some cells are specialized to perform a specific function. The specialized function of transporting oxygen throughout the human body is carried out by:
A) nerve cells
B) stem cells
C) white blood cells
D) red blood cells

60. Heredity information is passed from one generation to the next by:
A. chromosomes   B. blood   C. cells   D. vacoules

61. Which process does NOT need cell division?
A. growth   B. repair of damaged tissue   C. cellular respiration   D. reproduction

62. Which is the smallest part of the circulatory system?
A) veins   B) arteries   C) capillaries   D) heart

63. Which represents the correct pathway of the nutrients in an apple once you take a bite?
A) circulatory system → cell → digestive system
B) circulatory system → digestive system → cell
C) Cell → digestive system → circulatory system
D) digestive system → circulatory system → cell
64. Which part of the human skeleton is most like the bones in a bird's wing?

A)  
B)  
C)  
D)  

65. Which is NOT a purpose of the human musculo-skeletal system?

A) providing shape and support  
B) protecting internal organs  
C) producing oxygen  
D) storing certain materials  

66. The diagram below best demonstrates that:

A) the skeleton protects body organs  
B) bones are held together by joints and ligaments  
C) muscles and bones work together to move body parts  
D) cartilage protects and cushions bones  

67. A girl found the skull of an animal. She did not know what the animal was, but she was sure that it preyed on other animals for its food. Which clue led to her conclusion?

A) The eye sockets faced sideways.  
B) The skull was much longer than it was wide.  
C) There was a projecting ridge on the front of the skull.  
D) Four of the teeth were long and pointed.
68. How do most fish get the oxygen they need to survive?

A) They take in water and break it down into hydrogen and oxygen.
B) Using their gills, they take in oxygen that is dissolved in water.
C) They get their oxygen from the food they eat.
D) They come to the surface every few minutes to breathe air into their lungs.

69. Insecticides are used to control insect populations so that they do not destroy crops. Over time, some insecticides become less effective at killing insects, so new insecticides must be developed. What is the most likely reason insecticides become effective over time?

A) Surviving insects have learned to include insecticides as a food source.
B) Surviving insects pass their resistance to insecticides to their offspring.
C) Insecticides build up in the soil
D) Insecticides are concentrated at the bottom of the food chain.

70. A student grew bacterial cells in nutrient broth. Controlling all other conditions, she found that more bacteria grew at pH 7.5 than at pH 7.0 or 6.5. Later she learned that “pickling” is one method used to prevent the growth of bacteria cells that spoil food. Based on the student’s findings, what effect does “pickling” probably have on food items?

A) It lowers the pH of the food.
B) It raises the pH of the food.
C) It causes the food to have more bacteria.
D) It makes the bacteria cells in the food larger.

71. If your food already has harmful microbes present, which method of food preservation is least effective to prevent food spoilage caused by microbes?

A) Freezing
B) Dehydration
C) Irradiation
D) Wrapping in paper

72. A force that slows down or stops the motion of a bicycle is

A) Sound
B) Heat
C) Friction
D) electricity
73. You are asked to push two vehicles. The SUV has more mass than the car. You use the same force (Newtons) to push both cars. What would happen?

A) The car would move a further distance
B) The SUV would move a further distance
C) They both would move the same distance

74. Which is false about forces?

A) Forces always make things move.
B) Forces can push things together or pull them apart.
C) An object that is still (at rest) can have two opposite forces acting on it.
D) The earth exerts a force of gravity on people.

75. The most fundamental rule relating to bridge design is that

a). the compression force must be zero
b). the tension force must be zero
c). the net force must be zero
d). the force of gravity must be zero

76 A basic triangle in a truss bridge is strong because
A) it can collapse into a parallelogram under a heavy load
B) it forms right angles
C) Its shape cannot be distorted
D) its shape can be changed to make different designs
77. The drawing below shows a prototype of a bridge. The prototype is made of craft sticks.

A student designed the bridge to support five toy cars. Which of the following properties of the bridge is **most** important in the student’s design?

A) flexibility  B) hardness  C) weight  D) strength

78. Which one of these distance over time graphs shows an object traveling forwards at a constant speed?

A) ![Graph A](image1)
B) ![Graph B](image2)
C) ![Graph C](image3)
D) ![Graph D](image4)

79. Which of the following can you calculate if you know a car travels 50 miles in 60 minutes?

A) Direction  B) Average speed  C) Acceleration  D) Force

80. A large wood block and a small wood block are pushed with the same amount of force. Which is true?

A) They will move the same amount at the same speed.
B) The large block will move farther.
C) The small block will move farther.
D) They will move the same amount at different speeds.

81. A person swings a weight on a string around their head. What are the forces acting on this object?

A) Gravity pulling down, and the force of the string pulling towards the center.
B) Gravity pulling down, and the force of the string pushing outwards.
C) Gravity pulling down, and the force of the person pushing in a circle.
D) The force of the person pushing in a circle.

82. Which of the following forces exerted by the Earth on the moon keeps the moon in orbit?

A) gravity  B) inertia  C) circular  D) orbital
83. Which of these best shows the relationship between Earth, the moon, and the sun?

A  
B  
C  
D  

84. The moon revolves around the Earth. This causes:

A) Earth to be warmer at night  
B) Earth to rotate more rapidly  
C) The moon to shine more brightly than other objects in the sky.  
D) The moon to appear as different shapes during the month.

85. This model can be used to show how the moon moves around Earth. This model also shows all of the following EXCEPT —

A) The amount of light Earth reflects  
B) The land areas of Earth and the moon  
C) How the moon makes a revolution  
D) How Earth and the moon compare in size

86. If all of the planets started at the same time and circled the sun, which one would finish the trip last?

A) Mercury  
B) Mars  
C) Neptune  
D) Earth

87. Imagine that the Moon suddenly disappeared. What would happen to the tides in Earth’s oceans?

A) The tides would be the same as before the Moon disappeared.  
B) There would only be smaller tides caused by the Sun.  
C) There would be a permanent low tide everywhere.  
D) There would be no tides.
88. Which factor causes the greatest effect on the seasons on Earth?
A) The Earth is farther away from the sun in winter
B) The sun is higher in the sky in winter
C) The Earth is tilted away from the sun in winter.
D) The time of daylight is shorter in winter

89. If you could look down from space at Earth from far above its north pole, the Sun and Moon would be in the directions shown by the arrows in the picture below. What would the Moon look like to a person on Earth facing the Moon?

90. Certain rock formations on the east coast of North America closely match formations on the west coast of Europe. This observation suggests:
A) North America and Europe are moving closer together
B) A mountain range once extended across the Atlantic Ocean
C) North America and Europe are on the same lithospheric plate
D) North America and Europe were once joined

91. In which of these ways can volcanoes help build up new land?
A) By adding heat to Earth’s surface
B) By adding gases to the atmosphere
C) By adding lava to Earth’s surface
D) By adding water vapor to the atmosphere
92. A glacier moving down a mountain valley is pictured below.

Glaciers are frozen, slow-moving rivers of ice that can move about three feet per day down mountain valleys. How does a glacier help create new soil?
A) by carrying living plant material to the ocean
B) by scraping small particles off large rocks
C) by melting rocks along its path down the valley
D) by freezing small particles of soil to form large rocks

93. Pictured below are two different groups of mountains that were formed by the movement of tectonic plates. Which is probably true about these mountains?

A) The mountains in picture B are younger than the mountains in picture A.
B) The mountains in picture A are younger than the mountains in picture B.
C) The mountains in picture A have gone through much erosion.
D) The mountains in picture A and B are the same age.

94) What is today's best evidence that mountain chains are different ages?
A) They all have different length.
B) They have folded layers of rocks.
C) They have different types of fossils.
D) The crystals in their rocks are of different sizes.

95. Why are rocks and pebbles found on riverbeds usually smooth?
A) The rocks and pebbles are not very old.
B) The rocks and pebbles rub against each other as water flows over them.
C) Rivers can only flow over smooth rocks and pebbles.
D) Organisms in the rivers break down the rocks and pebbles.
96. (C18) Different layers of rock within the Earth are shown in the picture above. Fossils were found in the layers A, B, C, and D. Which fossils are probably the oldest?
A) Those found in layer A
B) Those found in layer B
C) Those found in layer C
D) Those found in layer D

97. The diagram below shows the convergence between an oceanic plate and a continental plate. Collisions between these two types of plates are thought to be driven by:

A) Convection currents in the mantle.
B) Hot liquid magma in the inner core.
C) Volcanic eruptions along coastlines.
D) Meteor impacts in the ocean basins.

98. Which is NOT an example of erosion?
A) An icy winter causes the pavement in a road to crack.
B) A glacier picks up boulders as it moves.
C) A flood washes over a riverbank, and the water carries small soil particles downstream.
D) The wind in the desert blows sand against a rock.
1) A group of students tested different soils to compare how much water they each can hold water. They used the following setup:

They used the following procedure:

Put some sand, clay or garden soil into a funnel.
Pour water into the funnel and measure how much drips through.
Repeat for all 3 soil types.

Describe two improvements that could be made to their procedure. Explain how each improvement would make their data and conclusion more reliable.

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2. A class does an experiment to test if running in place affects heart rate. They measure the heart rate of each person at the beginning of class. They average the heart rate of the whole class, then each person runs for 5 minutes. They then measured the heart rate of each person afterwards, and found that the average went up 10 beats per minute.

Their data table is shown below:

Start of class (26 people): average heart beat is 88 bpm

End of class (23 people): average heart beat is 98 bpm

The class then decides to investigate whether listening to different kinds of music affects people’s pulse rate.

Write a step-by-step procedure you could use to collect reliable data related to your question. Include enough detail so that someone else could conduct the same experiment and get similar results.
3. Use the information to answer the open-ended experimentation question. Answer the questions in the space provided. Make sure to write clearly and neatly, while answering the question fully. Remember to answer the question, then WRITE a good explanation. You can always add diagrams or charts if you think it will help explain your answer.

A class does an experiment to test if surface texture affects sliding force. They measure the amount of weights needed to slide three different blocks off a table with cardboard as shown. They then repeat the experiment with 2 different grain sizes of sandpaper.

Their data table is shown below:

<table>
<thead>
<tr>
<th>Washers to Slide Block:</th>
<th>BLOCK 1</th>
<th>BLOCK 2</th>
<th>BLOCK 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLOCK 1</td>
<td>( 40 grams)</td>
<td>( 20 grams)</td>
<td>( 10 grams)</td>
</tr>
<tr>
<td>SURFACE:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cardboard</td>
<td>5 washers</td>
<td>4 washers</td>
<td>2 washers</td>
</tr>
<tr>
<td>#100 coarse sandpaper</td>
<td>15 washers</td>
<td>8 washers</td>
<td>4 washers</td>
</tr>
<tr>
<td>#50 fine sandpaper</td>
<td>20 large washers</td>
<td>40 washers</td>
<td>15 washers</td>
</tr>
</tbody>
</table>

3. (CINQ8) (What conclusions can be drawn from their experiment and results? How valid do you think these conclusions are, based on the group’s experiment and results? Explain your answer fully.)

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