



PRIMARY 6 SCIENCE
MID-YEAR ASSESSMENT
DECEMBER 2021

Name: _____

Duration: 100 minutes

Class: _____

Marks : _____ / 60

Deadline:

Please submit your assignment (the answer of question 9) by: 09.25 a.m, on Monday, December 6th 2021, upload in LSS student. Link: Mid-Year Assessment.

Instructions:

Read the questions. Write your answers in the spaces provided.

1. Observe each diagram below and identify the type of force acting on it.

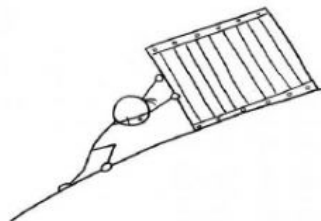
a. What type of force made the bike come to a stop?

(1)



b. What two forces that he must overcome in order to push the box up the slope?

(2)



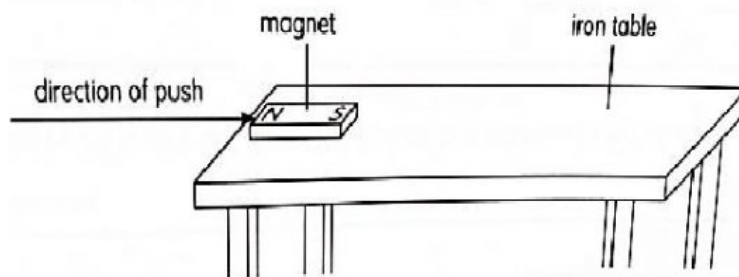


- c. What type of force made the chest expander able to stretch to train muscle strength? (1)

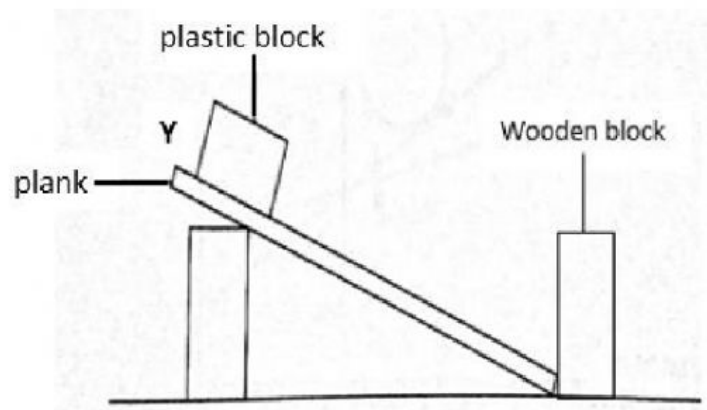


CHEST EXPANDER

- d. What three forces must overcome in order to move the magnet to the other end of the table? (3)



2. Sam conducted an experiment as shown below. When he released a plastic block from point Y, it moves down the plank and stop **before** it hit the wooden block.



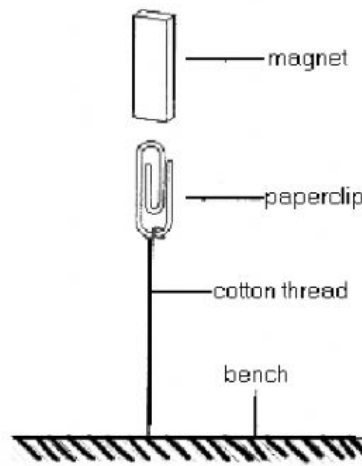
- a. What cause the plastic block to stop before it hit the wooden block? (1)



- b. Without changing the plank, suggest two ways so plastic block can hit the wooden block when Sam re-release it. Explain your answer. (4)

Ways	Reason

3. Jenna tied a steel paper clip to a string which was attached to the bench. She then placed a strong magnet above the steel paper clip. She observed that the steel paper clip floated in the air.



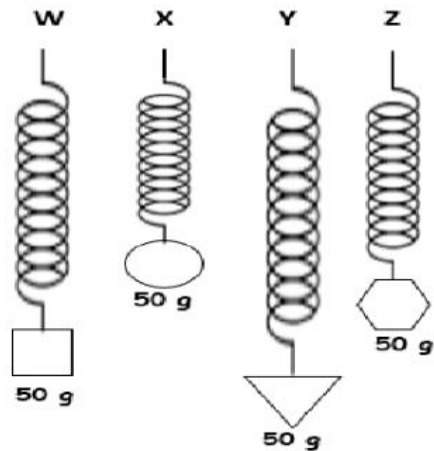
- a. Name two forces that acted on the steel paper clip. (2)

- b. What would Jenna observe, if she used a silver ring instead of a steel paper clip in the experiment? Explain your answer. (2)



4. Liz wants to find out which spring is the most elastic. She hung 50 g slotted masses of different shape in 4 types of springs W, X, Y and Z. The table below show the extension of each spring as shown in the picture.

Spring	Extension of the spring (cm)
W	8
X	5
Y	9
Z	7



- a. If after she removed the slotted masses, all the springs back to its original length, which spring is the most elastic? (1)

- b. Is the experiment above a fair test? Explain your reason. (2)

- c. In another experiment, Liz hung different mass of slotted masses on spring Y with the original length 4 cm and measured its new length. The table below show the result.

Mass hung on the spring Y (g)	New length of the spring Y (cm)
50	9
100	14
150	19
200	25



After she removed the slotted masses, the length of the spring Y remained 25 cm.
Explain why spring Y cannot return to its original length? (2)

5. The table below shows the population sizes of organisms that make up a community, X.

Organism	Number of organisms
Butterfly	11
Bee	9
Ladybug	31
Frog	1
Fungus	75
Centipede	1

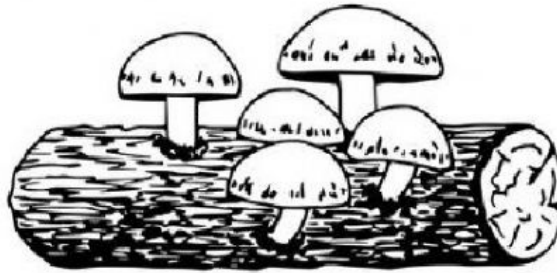
a. What is community X likely to be? Explain your answer. (2)

b. Based on the diagram above, how many populations are there on community X? (1)

c. List two factors in the environment that can affect the number of organisms living in community X. (2)

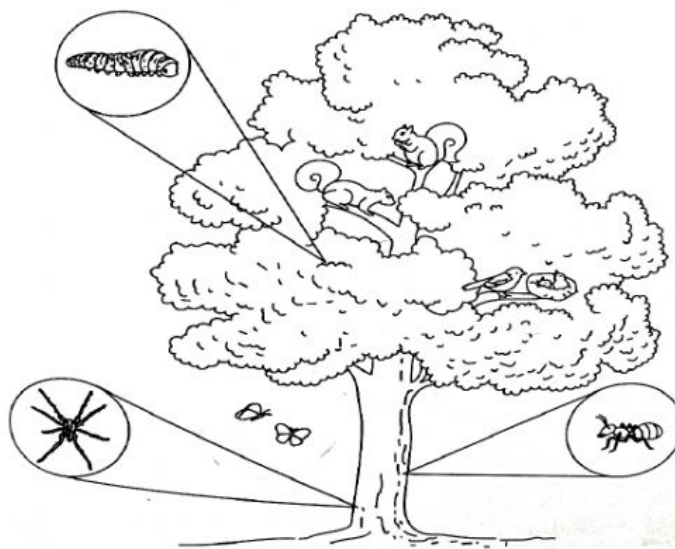


- d. Sandra observed fungi population grow on a rotting log like shown on the picture below.



She assumed that a rotting log is an organism because it provides nutrients for fungi. Do you agree with her opinion? Explain your answer. (2)

6. Henry saw a tall tree in a nature reserve. There were squirrels, a caterpillar, a bird and its young, butterflies, a spider and an ant on the tree.



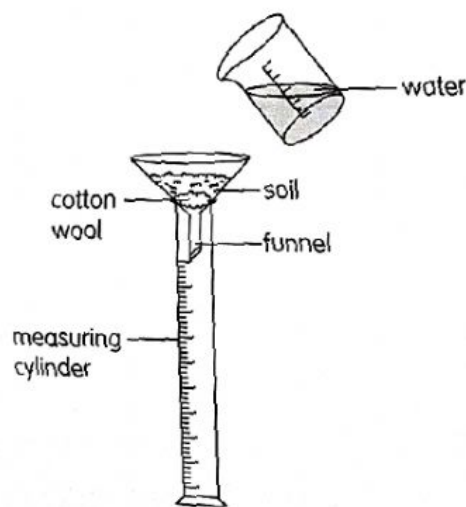
- a. What are the populations found based on the diagram above? (3)

- b. Why different organisms can be found on the tree? (1)



- c. Henry said that the tree is an organism as well as a habitat. Is he correct? Explain your answer. (2)

7. Amira wanted to investigate which type of soil, X, Y or Z, allowed the most water to pass through it. She carried out an experiment by pouring 50 ml of water over 20 gr of each type of soil as shown below.



The table below shows the results of her experiment.

Type of soil	X	Y	Z
Volume of water collected after 5 minutes (ml)	10	45	25

- a. Write two variables that are kept the same to ensure a fair experiment. (2)

- b. Which type of soil, X, Y or Z, is most likely found in a desert habitat? Explain your answer. (2)



- c. Amira had a plant which needed a lot of water to grow well. Based on the results in the table, which type of soil should she use for growing the plant? (1)

8. Nancy placed four organisms, F, G, H, and I, separately in five identical tanks. She also placed 50 gr of fresh leaves, 50 gr of meat and 50 gr of fruit into each tank. At the end of three days, she weighed the amount of food left in each tank. Her results are shown in the table below.

Organism	Mass (gr)		
	Fresh leaves	Meat	Fruit
F	15	50	40
G	50	13	50
H	47	46	18
I	13	50	20
J	35	35	35

- a. Suggest the aim of Nancy's experiment? (1)

- b. Classify the organisms above into three groups based on how they obtain their energy in the table below. Give a suitable heading for each group. (4)

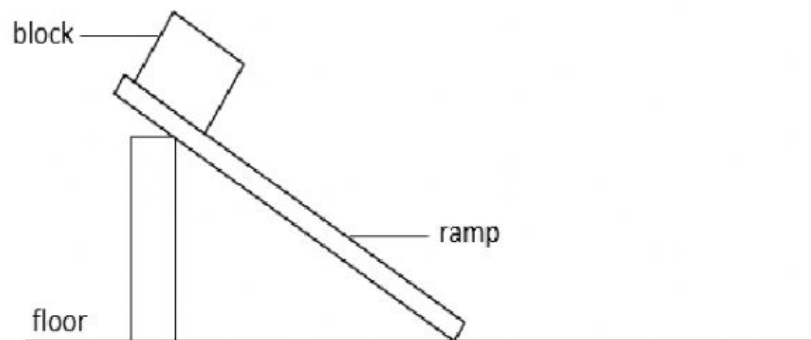
9. Mr. Ray observed a rice field community. He found several organisms like: mice, snakes, finches, frogs, eagles and grasshoppers.

- a. Build three (3) food chains from the populations found in this community. (3)

- b. Connect the food chains in (a) into a food web. (2)



- c. Identify the producer, prey, predator and the organism that can be a prey and predator. (4)
- d. What organism get the most energy from the Sun? (1)
- e. If frog population decreased to zero when it was attacked by a disease caused by a kind of virus. Predict the effect on the other organism(s). (3)
10. Ryan set up an experiment as shown below to investigate frictional force between a block and ramp surfaces. He covered the ramp with three different materials. He released the block from the top of the ramp and recorded the time taken for it to reach the floor.



Ryan carried the experiment three times for each different ramp surfaces. The table below shows the result.

Ramp surfaces	Time taken for the block to reach the floor (s)			
	1 st try	2 nd try	3 rd try	Average
P	1.6	1.7	1.8	1.7
Q	4.5	4.4	4.7	4.5
R	2.9	2.8	2.6	2.8

- a. Arrange the ramps surfaces from the roughest to the smoothest. (1)
- b. How does the surface of the ramps relate to time taken? What does this tell you about the frictional force produce by the block and ramp surface? (2)