UNIT 3 FORCES AND ENERGY (REVIEW)

Question 1:

Complete the sentences: **g kg m N**

- Mass can be measured in _____ or _____.
- Weight is measured in _____

Question 2:

Draw lines to match

Description	Property
This is the force of gravity on an object.	
This is the quantity of matter in an object.	weight
This is constant, even when the strength of gravity changes.	mass
This changes, depending on the strength of gravity.	

Question 3:

If a statement is correct, put a tick (✓) after it.
If a statement is incorrect, put a cross (X) after it.

Statements

- ☐ 1 If you go to the Moon, your weight will be less than on Earth.
- ☐ 2 If you go to the Moon, your mass will be less than on Earth.
- ☐ 3 The same objects will feel heavier on the Moon than on Earth.
- ☐ 4 You could throw a ball higher on the Moon than on Earth.
- ☐ 5 Your rocket will need more force to take off from the Moon than from Earth.

LIVEWORKSHEETS

Question 4:

The strength of gravity on Earth is 10 N/kg
The strength of gravity on the Moon is 2 N/kg
The equation for weight, gravity and mass is: gravity in N/kg × mass in kg = weight in N

1 Calculate the weight of a 55 kg person on Earth.

_____ N

2 Write down the mass of a 55 kg person on Earth.

_____ kg

3 Calculate the weight of a 55 kg person on the Moon.

_____ N

4 Write down the mass of a 55 kg person on the Moon.

_____ kg

5 A television camera has a weight of 20 N on the Moon. Calculate its mass.

_____ kg

Question 5:

Complete the sentence using the most appropriate words.

As the mass of a planet _____ the strength of gravity on the planet

_____.

Question 6:

The strength of gravity on a planet is 5 N/kg.

Calculate the weight of an 800 kg spacecraft on that planet.

Show your working and give the unit in your answer.

_____

_____

LIVEWORKSHEETS

Question 7:

Explain how the Moon causes a high tide in the ocean

_____

_____

_____

_____

Question 8:

A bag of sugar is lifted onto a high table.

State two energy stores in the sugar.

_____

_____

Question 9:

Describe how to demonstrate that thermal energy is dissipated from a cup of hot tea

_____

_____

_____

_____

Question 10:

1 Complete the sentences using words from the list. Each word can be used once, or not at all.

Earth **Sun** **gravity** **tidal** **Moon**

a The forces that cause tides are called _____ forces.

b The forces that cause tides come from the _____ and the _____.

c The forces are pulling forces referred to as _____.

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Question 11:

Read the statements and write **'true' or 'false'** after each one.

a. A tide is the change in depth of the ocean every day.

_____

b. A tide is the change in the height of the land above sea level every day.

_____

c. The time between high tide and the next high tide is six hours.

_____

Question 12:

Name two objects that cause tidal forces on Earth.

1 _____

2 _____

Question 13:

Describe two effects of tidal forces on Earth.

1 _____

_____

2 _____

_____

Question 14:

Could the Earth cause tidal forces on the Moon?

Circle one answer: **yes** **no**

Explain your answer

_____

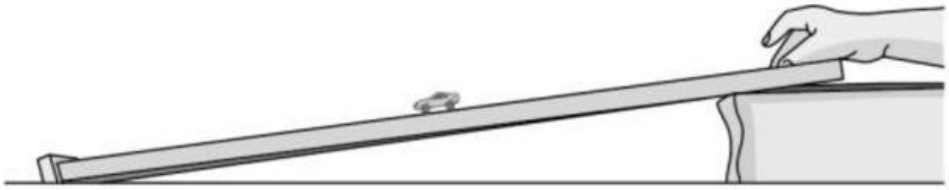
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LIVEWORKSHEETS

Question 15:

Marcus makes a ramp using a piece of wood and some books. He puts a toy car at the top of the ramp and releases it.



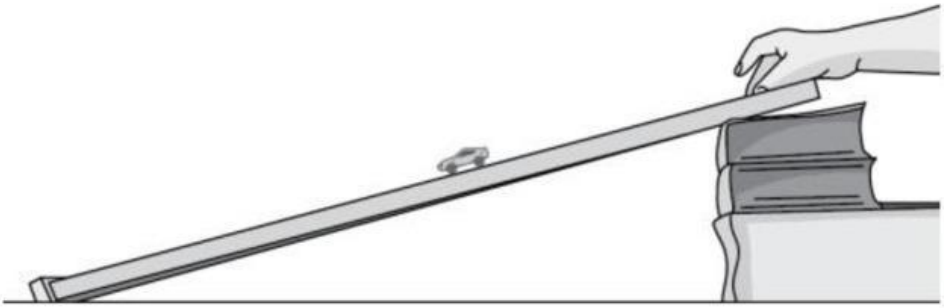
Complete these sentences using energy stores or transfers.

a When Marcus lifts the toy car up onto the ramp, he gives the car _____ energy.

b As the car goes down the ramp, _____ energy gets changed to _____ energy.

c When the car gets to the bottom of the ramp, the car has the most _____ energy.

Question 16:



Marcus makes the ramp higher by adding more books.

Marcus predicts that the car will go faster on the higher ramp. Explain Marcus's prediction using ideas about energy changes.

_____

_____

_____

LIVEWORKSHEETS

Question 17:

Investigating energy changes

Marcus has two pieces of wood to make ramps. One piece of wood is longer than the other. The surface is the same on both pieces. Marcus has some books to support one end of the ramp. He does four different experiments with these ramps.

A



B



C



D



Marcus places the same toy car at the top of each ramp and releases it. He wants to compare the speed of the toy car at the bottom of each ramp.

a Explain why Marcus should use the same toy car each time.

_____

_____

b State the independent and dependent variables in Marcus's investigation.

Independent: _____

Dependent: _____

c Two of the ramps make the car go at the same speed. Predict which two.

Write the letters. _____

Explain your answer using ideas about energy.

_____

_____

_____

_____

LIVEWORKSHEETS