JOHN GRAY HIGH SCHOOL

KS3 SCIENCE: YEAR 8

NON-CONTACT FORCES

PAPER 2

Time : 45 mins

READ THE FOLLOWING INSTRUCTIONS CAREFULLY.

1. This paper consists of **FOUR** questions.
2. Answer **ALL** questions.
3. Indicate your answers in the spaces provided.
4. Remember to read the questions properly before attempting to answer

Name: _____

Teacher's Name: _____

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO.

1a. Which of the three materials below are metal elements attracted to a magnet?

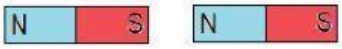
☐ gold	☐ nickel	☐ platinum
☐ silver	☐ titanium	☐ plastic
☐ copper	☐ iron	☐ paper
☐ cobalt	☐ wood	☐ lead

(3 marks)

b. Determine whether the magnet pairs below will ATTRACT or REPEL each other.

a. 

_____

b. 

_____

c. 

_____

d. 

_____

(4 marks)

c. Drag the materials below to the correct headings to complete the table.

plastic bag | iron nail | aluminium foil | copper coin | steel rod | wooden spoon | nickel key | tin can

Magnetic Material	Non-magnetic Material

(4 marks)

2a. Complete the sentences below.

Static electricity is an example of a _____ force. This is so because _____. Two examples of static electricity happening in everyday life are _____ and _____. Two uses of static electricity in the workplace are _____ and _____.

(6 marks)

b. Look at Diagram 1 and Diagram 2 below and answer the questions that follow.

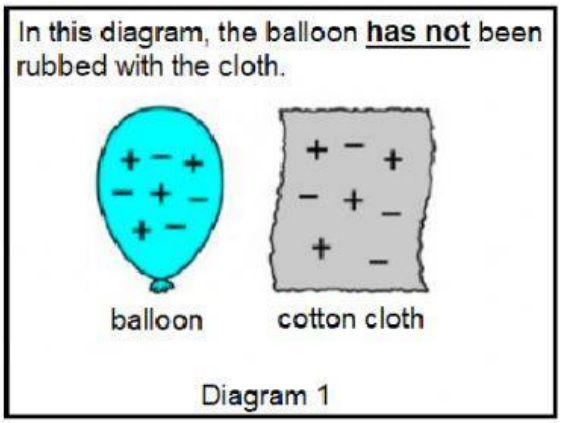


Diagram 1

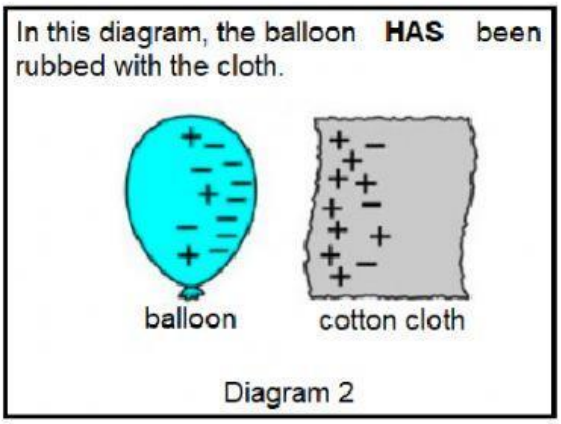


Diagram 2

i. The charge on both the cloth and balloon in Diagram 1 is _____

ii. After rubbing the balloon with the cloth, the charge on the cloth was _____

iii. After rubbing the balloon with the cloth, the charge on the balloon was _____

iv. In Diagram 2 the value of the charge on the balloon is _____ and the value of the charge on the cloth is _____.

(5 marks)

c. Compete the following table comparing magnetism to static electricity.

MAGNETISM	STATIC ELECTRICITY

(3 marks)

d. Complete the sentences below.

Atoms are made up of _____, neutrons and _____.

Atoms are generally neutral because their _____ are

_____ as their protons. An object becomes negatively charged

when it _____ and an object becomes positively charged by

_____.

(3 marks)

3a. Mass, weight and gravity (gravitational pull) have a relationship. Drag the terms below into place to form this relationship.

gravity **mass** **weight**

	N	**=**		**kg**	**x**		**N/kg**

(3 marks)

b. Match the following terms below to their meaning.

Unit of measurement for mass. ■	■ Mass
Amount of matter in an object. ■	■ Gravity
A push, pull or twist. ■	■ Weight
Force exerted on an object's mass by gravity. ■	■ Newton
Downward force acting on all objects. ■	■ Kilogram
Unit of measurement for force. ■	■ Force

(3 marks)

c. You have been invited to travel on a Space Cruise to all the planets in the Solar System. The mass of your body, on the day you leave Earth is 20kg. Calculate your weight on each planet that you visit and complete the table below. **Your weight on Earth has been done for you.** **(7 marks)**

	Planet	Gravity (N/kg)	Mass (kg)	Weight (N)
i.	Mercury	3	20	
ii.	Venus	9	20	
iii.	Earth	10	20	**200**
iv.	Mars	4	20	
v.	Jupiter	23	20	
vi.	Saturn	9	20	
vii.	Uranus	8	20	
viii.	Neptune	11	20	

d. Based on the planets' gravitational values from the table above, which planet is probably the largest?

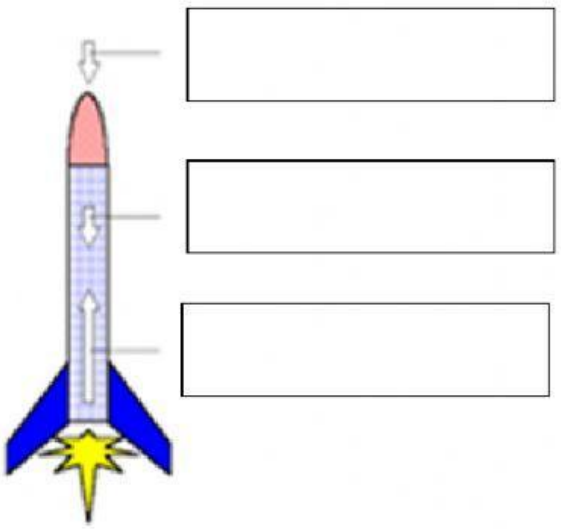
_____ **(1 mark)**

e. Based on the planets' gravitational values from the table above, which planet is probably the smallest?

_____ **(1 mark)**

f. Drag the words to label the forces acting on a space-ship as it travels into outer space.

thrust **air resistance** **gravity**



(3 marks)

4a. Determine whether the following statements about magnets are TRUE or FALSE.

i. Magnets only attract magnetic materials.	True	False
ii. Magnets can attract and repel other magnets.	True	False
iii. Magnets repel non-magnetic materials.	True	False
iv. Magnetism goes through paper.	True	False
v. Magnetism goes through iron.	True	False
vi. The two ends of a magnet are called the East and West poles.	True	False
vii. Magnetic field lines go in and North and out from South.	True	False
viii. Magnetic field lines are strongest at the ends.	True	False

(4 marks)

b. Drag the information below to complete the table on magnets.

Heat a magnet.

Sticking things to the fridge. Drop a magnet many times.

Making a compass. Hit a magnet over and over.

Stroke a piece of iron with a magnet.

Lifting objects at the iron scrap yard.

Leave a piece of iron next to a magnet.

Ways to Make a Magnet	Ways to Destroy a Magnet	Uses of Magnets

(3 marks)