## What's Gravity?

## **Pre-reading Activities**

## **Question 1:**

#### Para-jumping

Observe the pictures given in your textbook and answer the questions.

i. What do you see in both the pictures?

#### Answer:

By observing the pictures, we see a group of people holding hands while para-jumping.

ii. Where will they finally land? Why?

#### Answer:

According to me, they will finally land on the surface of the earth. The earth's force of gravity will pull them downwards.

iii. How do you think they will land safely?

#### Answer:

They will land safely by opening the parachutes tied on their backs. This will reduce compact of their fall on earth.

## **Question 2:**

## Scientist

Given table shows scientists, reasons for their fame and their contribution to the world. Column B and C are not in a correct order. Match column 'A' with 'B' and 'C'.

	Α		В		С
No.	Name of the Scientist		Famous as a/an		Contribution
i.	Srinivasa Ramanujan (1887 – 1920)	a.	Physicist, Biologist, Archaeologist	1.	India's missile and nuclear weapon programmes
ii.	C. V. Raman (1888 – 1970)	b.	Scientist	2.	Investigation of radio and microwave optics
iii.	Homi Jehangir Bhabha (1909 – 1966)	c.	Mathematician	3.	Raman effect
iv.	Jagdish Chandra Bose (1858 – 1937)	d.	Physicist	4.	Architect of Indian Atomic Energy program
v.	A. P. J. Abdul Kalam (Born 1931)	e.	Theoretical Physicist	5.	Mathematical analysis, number theory infinite series

## Answer:

(i - c - 5), (ii - d - 3), (iii - e - 4), (iv - a - 2), (v - b - 1)

## A2. Understanding the Extract

#### **Question 1:**

## How did Sir Isaac Newton find the power of gravity? (indirect/experience) Answer:

Sir Isaac Newton was sitting under a tree when an apple fell on his head. By this, he understood that there exists a force that attracts everything to the earth. He named this force as gravity.

#### **Question 2:**

# What was Sir Isaac Newton's expression immediately after he found the power of gravity?

#### Answer:

As soon as Sir Isaac Newton found the power of gravity, he exclaimed out loudly, 'Eureka!' in joy.

## **A1. Factual Reading**

#### **Question 1:**

#### Read the extract carefully and complete the following.

i. The poet asks .....

ii. ..... made a find.

iii. ..... found out the principle of gravity.

iv. ..... fell from a tree onto the scientist's head.

#### Answer:

i. what gravity is

ii. Sir Isaac Newton

iii. Sir Isaac Newton

iv. an apple

#### **Question 2:**

#### Read the extract and complete the given sentences.

i. Sir Isaac Newton found .....

ii. Everyone soon found out .....

#### Answer:

i. the law of gravity

ii. why objects dropped from way up high ended up down below

#### **Question 3:**

State whether the following statements are True or False. Correct the false statements.

i. 'From A right through to Z'- the poet means the alphabets.

ii. Sir Isaac Newton exclaimed, 'I did it! '

#### Answer:

i. False. 'From A right through to Z'- the poet means all the things in the universe. ii. False. Sir Isaac Newton exclaimed. 'Eureka!'

#### **Question 4:**

What is the scientific fact put in a poetic form here? **Answer:** 

The scientific fact of the law of gravity is put in a poetic form, here. According to the law of gravity, when things are dropped from a height, they fall down on the ground.

#### **Question 5:**

What did Sir Isaac Newton find? (Discovery)

#### Answer:

Sir Isaac Newton found out the reason why objects dropped from way high up ended up down below on earth, i.e. he discovered gravity.

## A3. Vocabulary

#### **Question 1:**

Write the pairs of rhyming words from the extract. **Answer:** 

i. said – head ii. know – below

## **Question 2:**

Give the opposites for the the extract following from i. rose ii. low iii. start iv. above **Answer:** i. fell ii. high iii. end iv. below

## **A1. Factual Reading**

#### **Question 1:**

#### Answer:

i. attract each other

- ii. gravity
- iii. be lost afloat in outer space

## **Question 2:**

Read the extract and complete the given sentences.

- i. The law of gravitation says .....
- ii. Gravity affects .....
- iii. Gravity means .....

## Answer:

i. that all things attract each other

ii. most things like the sun, the planets,

moon, stars and human beings

iii. the force that keeps our feet in place on earth

## **Question 3:**

Complete the web by choosing the heavenly bodies mentioned in the extract.



i. Sun

ii.Planets iii. Moon

iv.Stars

## Answer:

i. Sun iii. Moon

## A2. Understanding the Extract

## **Question 1:**

What does the law of gravity say? (explain)

## Answer:

The law of gravity says that all things attract each other.

## **Question 2:**

What would happen in the absence of this power of gravity? (disadvantage)

## Answer:

In the absence of this power of gravity, we would not be able to keep our feet on earth. We would be lost and would be afloat in outer space.

## A3. Vocabulary

## **Question 1:**

Find from the extract words that mean i. disrespectful or an unruly child ii. drifting without guidance **Answer:** i. bratty ii. afloat

## **Question 2:**

Write the pairs of rhyming words from the extract. **Answer:** i. other – brother ii. place – space

## **Question 3:**

Which lines in each stanza rhyme? **Answer:** Line no. Vand iv in each stanza, rhymes.

## **Additional Questions for Practice**

## **Question 1:**

## Just for fun

If a big bunch of cotton and stone, both having similar weights are thrown down from a high building – which one will fall down first?

## Answer:

i. Find out your own reasons for the answer. Ans: In vaccum, both will reach the earth at the

same time because the acceleration due to gravity (g) is independent of the mass or weight of the object.

ii. Collect some more puzzles of such type and puzzle your friends.

a. Why is copper used in making electric wires?

## Answer:

Copper is a good conductor of electricity. It can easily pass current through it. Hence, it is used in making electric wires.

b. Why are foils made up of aluminium?

## Answer:

Aluminium is a malleable metal, i.e. it can be easily drawn into sheets. Hence, it is used in making foils.

## **Question 2:**

Read the poem again and after discussing with your partner answer the following questions.

i. How does science change our everyday life?

## Answer:

New inventions and discoveries made in

science have made many changes in our everyday life. The means of communication and transportation save a lot of time. We can communicate with people at far off distances within a blink of an eye. We can also travel to far off places in the shortest possible time. We are able to live a better and comfortable life as compared to the past. The life span of man has also increased due to better healthcare and medical facilities.

ii. What is gravity, according to you?

## Answer:

According to me, gravity is the force that attracts all things towards the earth's surface. It is a force due to which all things dropped from a height fall on the ground.

## **Question 3:**

Things affecting gravity Complete the following table.

Stanza	things affected by gravity	supporting line
i.	all things	gravity affects most things from A to Z
ii.	1	fell from a tree
iii.	object	
iv.	sun, moon, planets	
v.	feet	

## Answer:

Stanza	things affected by gravity	supporting line
i.	all things	gravity affects most
		things from A to Z
ii.	an apple	fell from a tree
iii.	object	why objects dropped
		from way up high
		will end up down
		below!
iv.	sun, moon,	all things attract each
	planets	other, the Sun, the
		planets, moon and
		stars
v.	feet	It keeps our feet in
		place

## **Question 4:**

## What's the question

Look at stanza No. (i) and stanza No. (ii). The poet has asked the same question twice. Identify the difference between these two questions.



## Stanza No. (i)

Answer: The question is asked to introduce the theme of the poem.

Stanza No. (ii)

Answer: The question concludes the importance of gravity.

## **Question 5:**

## **Referring a dictionary**

**i.** In the poem the phrase used is 'end up'. Now read the dictionary entry for the word 'end' and find out the exact meaning.

## Answer:

End (n) – the last part or point

End (v) – to come to a finish

**ii.** Given below are some phrasal verbs. Make sentences of your own using these phrasal verbs. One is done for you as an example.

e.g. the end of – Ravi's defeat in the second round marked the end of his championship in table tennis.

- a. met his end
- b. change ends
- c. in the end
- d. come to an end
- e. on end
- f. at the end of day
- g. end up

## Answer:

a. met his end – He met his end in a train accident at an early age.

**b. change ends** – In Tennis, if the number of games played in a set is uneven, the players change ends straight away.

c. in the end – In the end, what really matters in a friendship is trust.

**d. come to an end –** Finally, the meeting came to an end at 7 o'clock.

e. on end -He worked for hours on end to complete his school project.

f. at the end of day – The cricket players were very tired at the end of the day.

g. end up – If you continue to steal, you'll end up in prison.

## **Question 6:**

## Be a poet

Here is a poem on another concept from science 'FORCE'. Compose similar poems of your own on any one of the following topics.

What is Force?

## Answer:

It pushes or pulls That makes the planes on the air ride And a parachute merrily glide. Rockets with bright exhaust below The sky they hit.

Using the reaction equal and opposite.



## What is Friction?

#### Answer:

Friction resists the motion If more, one needs to take caution. Friction helps us walk What more do we need to talk? It is here, it is there To support the movement, it is everywhere. [Students can compose more such poems on their own.].