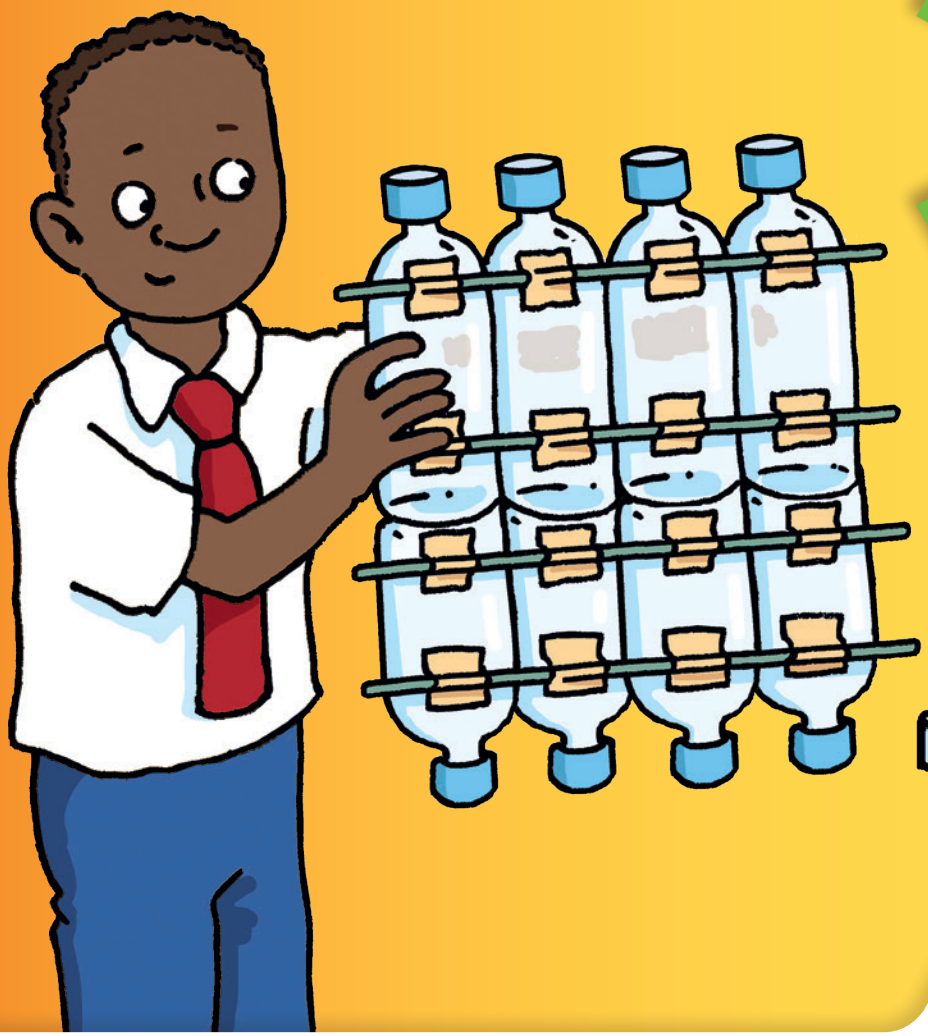
Primary Science

PEP Revision

Workbook

Rosemary Feasey

GRADE 5



Sample Pages

HODDER EDUCATION

Science

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HODDER EDUCATION

Contents

Term 3 Unit 1: Simple and complex machines

Term 3 Unit 2: Weather instruments

Term 1 Unit 1 Forces and work

Classifying force as push, pull and turn

Learning objectives

- Classify forces as a push, pull or turn.

Make a note

A force is a push or a pull that can make something move, stop, change direction or change shape.

1 Below are pictures of objects being pushed or pulled.

Classify the pictures into push and pull. The first one has been done for you.

a) someone pushing a wheelbarrow

b) someone pushing a swing

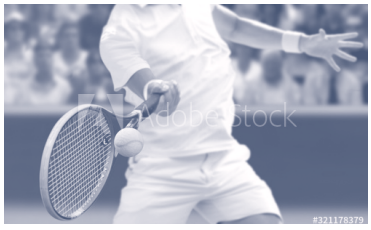
c) someone pulling a drawer open

d) someone zipping up a jacket

e) someone pushing a shopping trolley

f) someone kicking a football

g) a bird pulling a worm out of the ground



h) someone hitting a tennis ball

Push	Pull
a)	

2 Complete the sentences using these words:

direction **push** **change** **pull** **move**

a) A force is a ..... or a ..... that is applied to an object.

b) A force can ..... the shape of an object, make an object ....., stop or change .....

3 Are these statements **true** (**T**) or **false** (**F**)?

a)	A push and a pull are contact forces.	**T**	**F**
b)	A turn is not a force.	**T**	**F**
c)	A force can make something change direction.	**T**	**F**

4 List six things that you have done today which used a force. Write down whether each was a push, pull or turn.

i) .....

ii) .....

iii) .....

iv) .....

v) .....

vi) .....

Learning objectives

- Explain what is meant by the term 'contact force'.

Make a note

Pushes and pulls are contact forces because the force is applied directly to the object.

1 Name six things that you have done today where you have applied a contact force. Write down which force it was, a push, pull or a turn.

i) .....

ii) .....

iii) .....

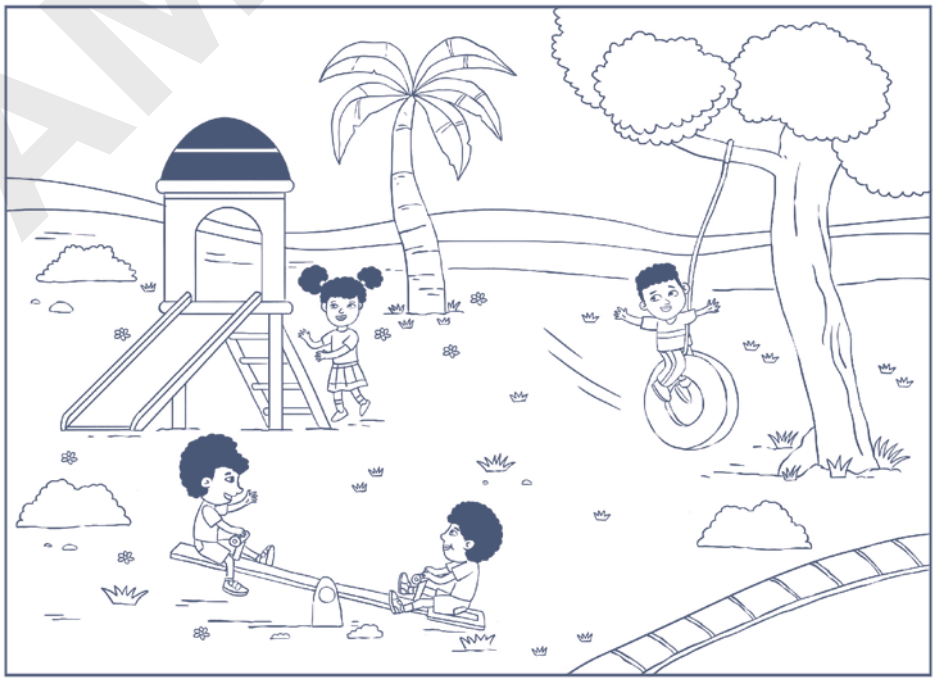
iv) .....

v) .....

vi) .....

2 Look at the picture below.

Put a PU next to where a push is being used and a PL where a pull is being used. There are six to find.



The amount of force needed related to the mass of object

Learning objectives

- Explain that when a force is applied to make an object move, work is done.

Make a note

Remember the bigger the force the further something moves, the bigger the mass of an object the bigger the force that is needed to move it.

1 If the same person kicks the ball but with different forces, where will the ball travel to? Look at the pictures below: the same person is kicking the ball but with different forces. Mark on each line the distance you predict the ball will travel.

a)  → small force

b)  → medium force

c)  → big force

2 If you pushed each of these objects, how much force would it take to move them?

feather **brick** **computer mouse** **table**

smallest force ..... biggest force

3 The mass of an object is how much matter (stuff) is in an object. Look back at Question 2. What is the link between the mass of each object and how much force it takes to move each object?

4 Which of these statements is **true** (**T**) and which is **false** (**F**)?

a) When a force is applied to make an object move, no work is done. **T** **F**

b) When a force is applied to make an object move, work is done. **T** **F**

Learning objectives

- Demonstrate that the bigger the force, the further something moves.
- Explain that the bigger the mass of an object, the bigger the force that is needed to move it.
- Describe how we can measure forces using a Newton meter.

Make a note

Forces can be measured using Newton meters. Forces are measured in newtons (N).

Different force meters measure different strengths. Force meters with springs made from thicker wire measure stronger forces and force meters with springs made from thinner wire measure weaker forces.

1 Here are three force meters. Read how much force it takes to pull the object. Write the answers below.

....

2 What does the N stand for? .....

3 Which Newton meter shows the greatest force being used?

.....

4 Which Newton meter shows the least force being used?

.....

5 Why do you think the Newton meters are different colours?

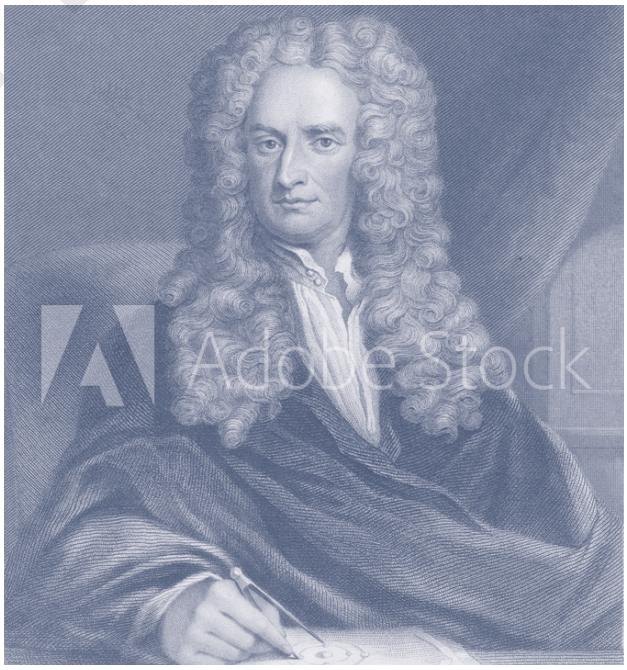
.....

6 Which Newton meter would you use to measure the force it takes to move these objects:

a) pencil case? .....

b) 2 kg bag of sugar? .....

7 Newton meters are named after a scientist called Isaac Newton. Research this scientist. Find out what he was famous for. Create a fact card about him to share with others.



8 Put these activities in order of how much force it would take to move each object, from the smallest force to the one you think will need the biggest force.

pulling a chair across the floor **lifting a book** **pulling on a sock**

smallest ..... biggest force force

Learning objectives

- Make repeat measurements to ensure accuracy of results.
- Demonstrate the link between the mass of an object and the force needed to move it.

1 Noah wanted to make a blow football game.

He decided to use different materials to make the football. He tested each one three times to find out which would be best. Here are his results.

Material	1	2	3	Average
Foil	78	51	50	60
Kitchen roll paper	104	66	132	101
Thick card	34	35	30	33
Thin card	33	122	82	79
Brown paper	88	101	72	24
Writing paper	104	120	84	103

a) What was Noah's question? .....

b) What did Noah change in each test? .....

c) What do you think Noah kept the same? .....

d) Why did Noah take repeat readings? .....

e) How did Noah calculate the average? .....

f) One of the answers in the average column is incorrect. Which one?

.....

g) What should the answer be? .....

h) Which football do you think had the greatest mass? .....

i) Why do you think this? .....

2 Use Noah's table to results to draw a bar chart. Remember to label the different parts of the graph and give it a title.

Learning objectives

- Demonstrate the link between the mass of an object and the force needed to move it.
- Demonstrate how a push or a pull can make something move, stop, change direction or change shape.

1 Design and make your own blow football game. Test the materials first to find out which one will make the best football.

2 Apply your knowledge of forces to speed up, slow down, stop and change the direction of an object.

3 Take photographs when you have made your blow football game and stick it onto this page.

4 Explain how forces are used in your blow football game to:

a) Make the football travel further. .....

b) Make the football travel faster. .....

c) Make the football change direction. .....

d) Describe how the mass of the ball affects the game. .....

Learning objectives

- Apply what I know about forces to design, make and test a vehicle that can be pulled and pushed.

1 Design, make and test a toy car or cart that can be pulled, pushed and made to change direction.

Draw an annotated diagram of your toy car or cart.

2 Measure the force it takes to make your toy car or cart move.

.....

3 How successful is your design? What would you change to improve how it moves so that it takes less force to make it move?

.....

.....

.....

.....

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Workbook

Sample Pages

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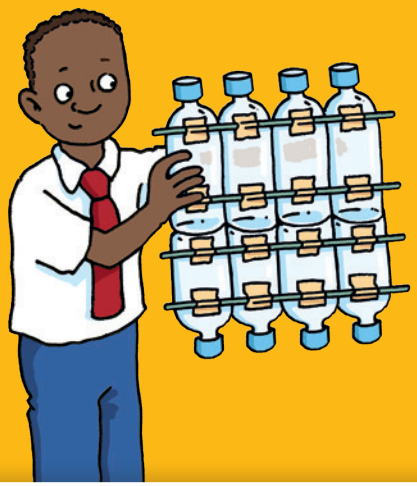

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ISBN 978-1-398-31332-3