

NAME: _____

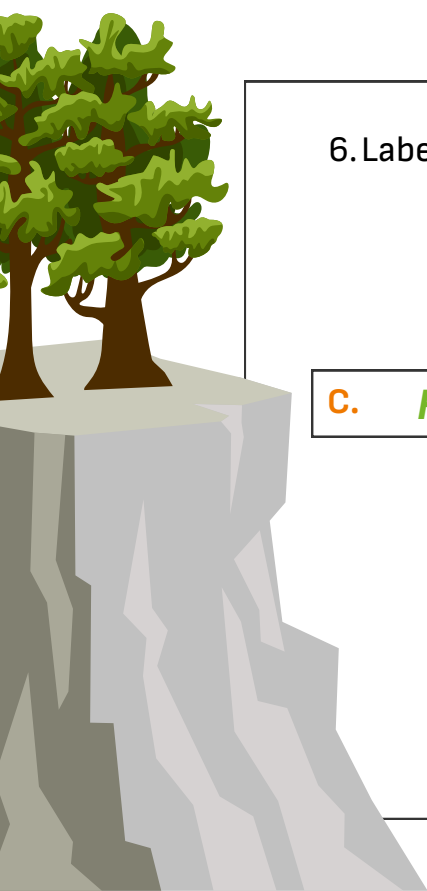
BLUEWATER HISTORY! - Circle True or False:

1. Bluewater has always been a shopping centre. True / **False**
2. The lakes were always in the Quarry. True / **False**
3. The lakes were removed when Bluewater was built. True / **False**
4. Bluewater opened in 1999. **True** / False

FORCES AND MOTION:

5. Connect the forces to the correct description.

GRAVITY	●	●	A force that opposes motion through the air, slowing objects down.
AIR RESISTANCE	●	●	A force that pulls objects toward the Earth.
FRICTION	●	●	A force that happens when two surfaces rub against each other.



6. Label the forces acting on the zipliner

A silhouette of a person is shown ziplining. They are holding onto a rope that is attached to a pulley system. Three orange arrows point towards the person: one from the top (labeled A. GRAVITY), one from the side (labeled B. AIR RESISTANCE), and one from the bottom (labeled C. FRICTION). A black arrow at the bottom points to the right, labeled 'Direction of travel'.

A. **GRAVITY**

B. **AIR RESISTANCE**

C. **FRICTION**

Direction of travel

ENERGY!

7. Which object has kinetic energy?

- a) A parked car ☐
- b) A moving bike ☒
- c) A book on a table ☐



DID YOU KNOW...

The faster something moves, the more kinetic energy it has — not just a little bit more, but a lot more! If you double the speed of something, its kinetic energy becomes **four times bigger**.

8. Give one example of something that has kinetic energy at Hangloose?

A person travelling down the zipline

9. Which object has the most potential energy?

- a) A ball resting on the ground ☐
- b) A ball at the top of a hill ☒
- c) A ball being thrown ☐

10. Why does a person ready to go on the Zipline have potential Energy?

A person on the zipline has stored energy because they are high up. When they go down the zipline, this energy changes into movement energy.

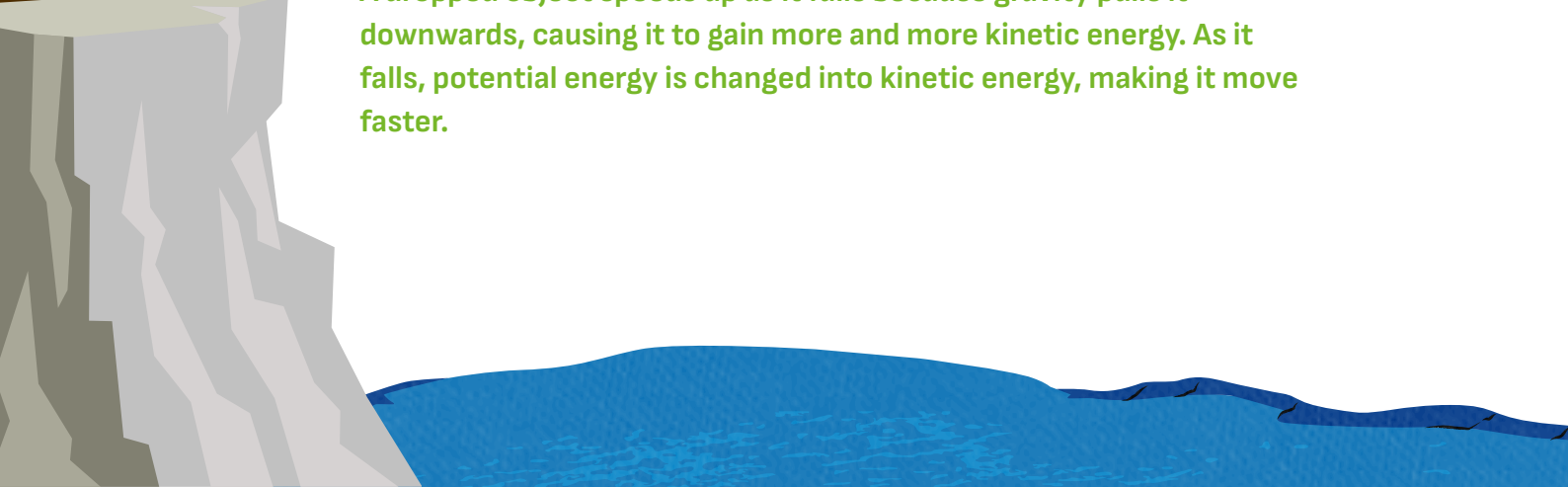
11. Fill in the gaps.

Someone is on the Swing at Hangloose

- At the top of the swing they have **POTENTIAL** energy.
- During the drop they have **KINETIC** energy.

12. Why does a dropped object speed up as it falls?

A dropped object speeds up as it falls because gravity pulls it downwards, causing it to gain more and more kinetic energy. As it falls, potential energy is changed into kinetic energy, making it move faster.



MATHS AND MEASUREMENTS

KEY FACTS:

- Zipline length = 720 metres
- Speed formula: $\text{Speed} = \text{Distance} \div \text{Time}$

13. A rider travels the full zipline of 720 metres in 100 seconds. What was their speed?

7.2 M/S

14. A rider travels 360 metres. What fraction of the zipline is this? $\frac{1}{2}$

Working out space:

Create a line graph using the information below and describe any patterns you notice.

- Jenny weighs 40kg and flew 35mph
- June weighs 60kg and flew 50mph
- Ted weighs 50kg and flew 40mph
- Mo weighs 65kg and flew 37mph

Are there any unusual results? Can you point out one that doesn't follow the pattern you expected?

Make sure you label your Axes.

Vertical Axis:

Horizontal Axis:

