

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**



**AIR RESISTANCE**



**FRICTION**

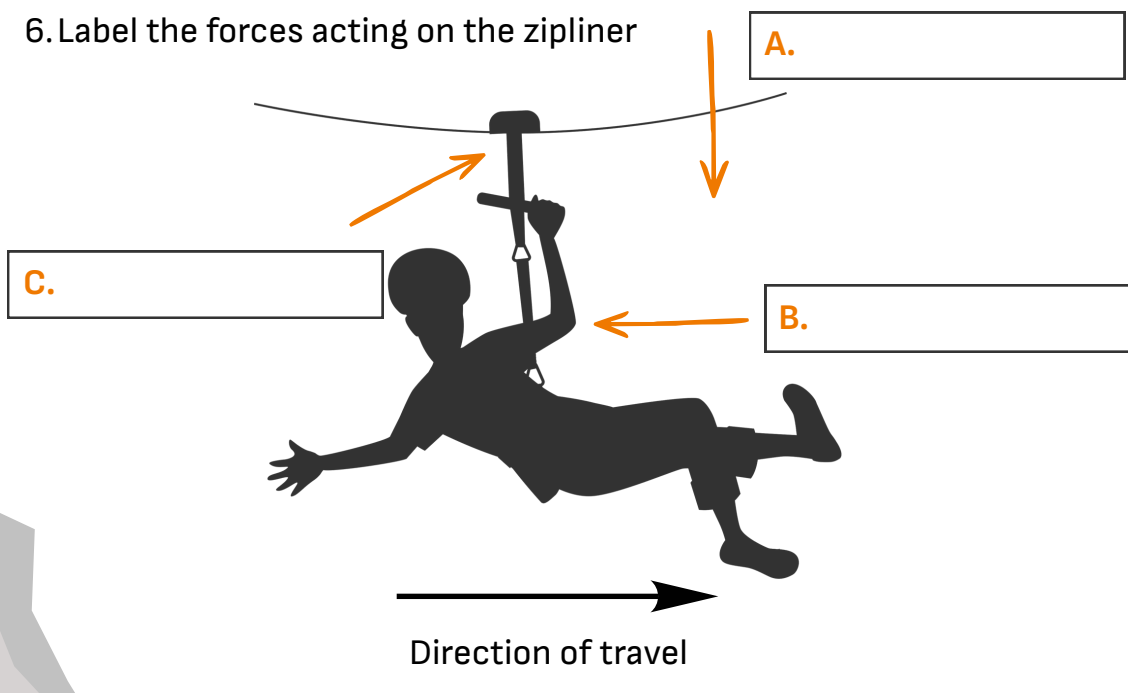


A force that opposes motion through the air, slowing objects down.

A force that pulls objects toward the Earth.

A force that happens when two surfaces rub against each other.

6. Label the forces acting on the zipliner

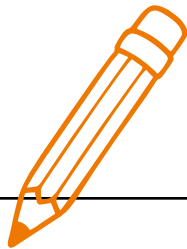


## DESIGN A NEW HANGLOOSE ACTIVITY!

6. Draw your new activity in the space below.

Label where these forces are acting:

- Gravity
- Friction
- Air resistance



THINK ABOUT...

Where are people speeding up or slowing down?  
What is pulling people downwards?  
What is stopping or slowing movement?  
Are any ropes, cables, or surfaces involved?

### Challenge Question:

Which force do you think is the strongest in your design? Why?

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## 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?

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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?

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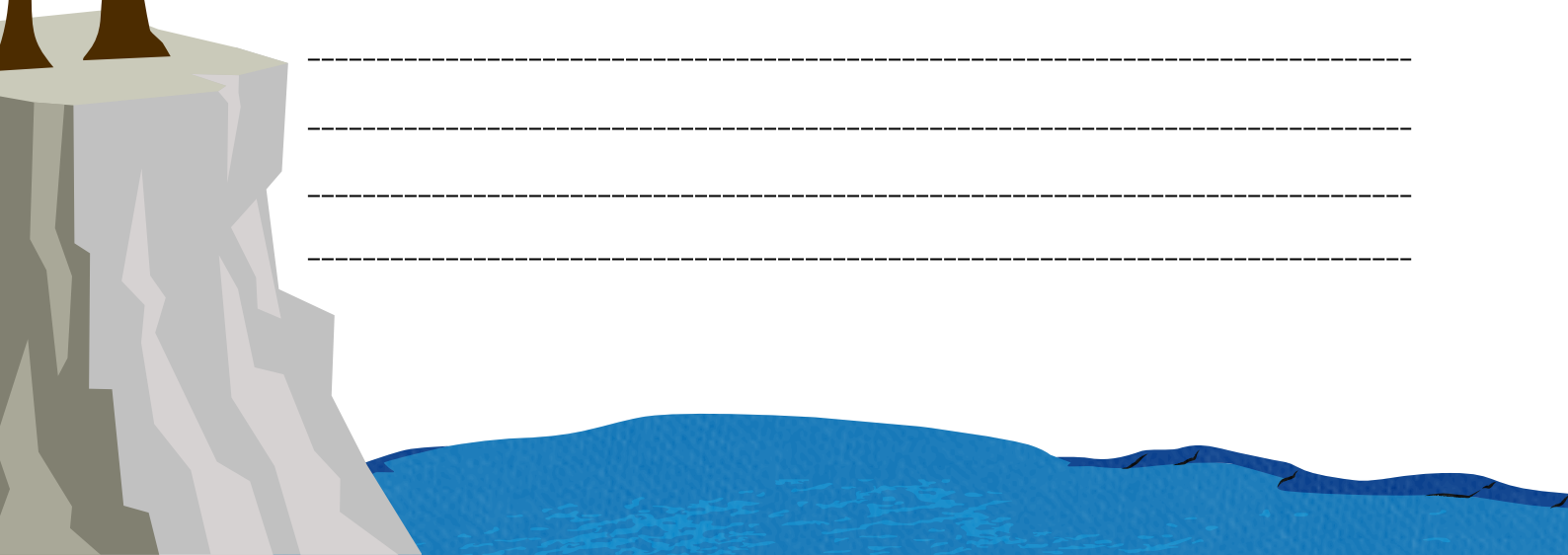
11. Fill in the gaps.

*Someone is on the Swing at Hangloose*

- At the top of the swing they have \_\_\_\_\_ energy.
- During the drop they have \_\_\_\_\_ energy.

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

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## 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?

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14. A rider travels 360 metres. What fraction of the zipline is this? -----

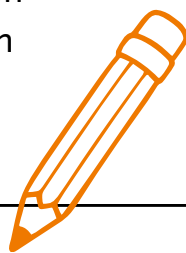
*Working out space:*

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: