How do Roller Coasters Work?

Imagination Station

Kia ora explorers!

This worksheet is to help you learn about roller coasters!

Start by watching this LEGO Discover video on YouTube:

https://www.youtube.com/watch?v=yWQSdmqXBKo

QUESTIONS:

Which ruler enjoyed riding the first ever roller coasters (that were actually just snowy hills)?

In 1846, a new roller coaster was built in Paris. What was special about this new roller coaster?

In your own words, write a definition for the word **friction**.

Draw a diagram to show a way you can generate friction using your own body. Also show how you can increase and decrease this friction.

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Which force pulls the roller coaster train down the track?

What is **momentum**? Write a definition in your own words.

What can you do to increase a rolling object's momentum?

What creates the **centripetal force** on a roller coaster?

How many sets of wheels do roller coaster trains have? Draw a diagram to show how these are arranged.

Research:
Even the wheel had to be invented! When is the first wheel known to have been invented and what was it used for?

Research:
Which group of people were the first known to use wheels to carry loads, and what kind of structure was the wheel part of?

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EXPERIMENT:

If you are very careful, and have lots of space outside, ask an adult if you can test centripetal force using a bucket full of LEGO. You can also use a small bucket of water. Only fill the bucket up to halfway or less!

Build a roller coaster track! Try different objects on your track to see which works best. You can draw some plans in the space below.