How does friction affect what we do? – 2

1. Explain why friction costs motorists more money for fuel.

2. Explain why the heat that friction produces can be a disadvantage.

3. Why would tyres with greater friction be helpful to people driving on icy roads?

4 Is the force of friction only experienced on land? Explain your answer.

5. Explain how friction helps keep people safe.

6. Describe two ways that people reduce the amount of friction between objects.
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7. True or false:

(a) Objects move faster if there is not a lot of friction.	True	False
(b) Friction is always helpful.	True	False
(c) Smooth tyres produce more friction.	True	False
(d) Friction affects many things we do in our everyday lives.	True	False

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Investigation—a friction problem

Dear Year 4 students,

I recently learnt that your class has been learning about friction, and I was hoping you could help me with a problem. During the rainy winter, the ramp near my office becomes very slippery. This is a very dangerous situation for anybody using this area. I would like you to research which is the most suitable material to attach to the ramp to make it safer to use. Unfortunately, I only have the budget to buy felt, plastic, sandpaper or rubber. I look forward to seeing your results.

Sincerely,

Your Principal

1. Working as a class, plan and conduct an experiment to decide which material will provide the most friction and make the ramp safer to use. You may use the following equipment to conduct your investigation:

Equipment:

- Large sheet thick, strong cardboard
- Sandpaper
- Felt
- Glue
- Tissue box
- Marbles
- Rubber gloves
- Plastic laminating sheet
- Spray bottle
- Water
- Scissors
- Disposable plastic container

2. Design your experiment.

   On a separate piece of paper, draw a labelled picture and write the steps for conducting your experiment. Think about how you will make your test fair.

3. **Prediction:** Which material do you think is the most suitable and why? How will your test show this?

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4. **Results:** As a class, decide how you will record and present your results.
5. Conduct the experiment!
6. **Conclusion:** Write a letter to inform the principal of your results. Which material do you recommend the ramp should be covered with and why?

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