



HOME LEARNING

Subject: Science

Time: 40-50 mins

Learning Objective: To be able to describe how car tyres are designed to increase friction with the road.

Friction - Mrs Baker's class

Task 1 – Click the links and watch the videos.

[Quick guide to F1 Tyres](#)

[F1 tyres in the wet](#)

Task 2 – Read the information and then answer the questions.



Use the information to answer the questions below.

TYRES



Formula 1 tyres are made from soft rubber. The job of the tyres is to give the best possible grip to the racing tarmac surface.

There are three different types of tyres to allow the cars to operate in different conditions.

Slick tyres have no grooves in them and can only be used in the dry.

Intermediate tyres have a groove pattern on them to help move water out of the way and not get a layer of water between the tyre and the road. This reduces grip (friction) and can cause the car to skid or crash.

Full Wet tyres have a tread pattern on them but also have a slightly rougher surface to increase friction with the slippery road.

1. How do **intermediate** tyres avoid water getting between the tyre and the road?

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2. Which type of tyre can only be used in the dry?

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3. Which type of tyre have a groove pattern?

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4. How do full wet tyres increase friction with the road?

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Challenge question – Why might a formula one team change the cars tyres during a race?

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5. The photograph shows two rubber tyres.
One is old and worn and the other is new.



old tyre with worn tread

new tyre with deep tread

(a) A car is moving along a road. What force between the tyres and the road makes the car stop? Tick the correct box.

air resistance

friction

gravity

weight

(b) The diagram and the table show the stopping distance of a car.



type of road surface	stopping distance, in metres			
	newtyres on a dry road	newtyres on a wet road	old, worn tyres on a dry road	old, worn tyres on a wet road
smooth tarmac	18	19	20	50
rough tarmac	13	18	17	23
concrete	12	17	16	21

(i) What happens to the stopping distance when a road gets wet?

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1 mark

(ii) Why does the stopping distance change when a road gets wet?

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1 mark

(iii) What happens to the stopping distance as tyres get old and worn?

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1 mark

(iv) What is the safest type of road surface in the table?

.....

1 mark

Save your work:

If you are using a computer, open a blank document to do your work (you can use Word or Publisher). Don't forget to SAVE it with your name, the lesson you are doing and the date.

For example: T.Smith Maths 8 April

If you would like us to see or mark your work please email it or send a photo of your completed work to:

jlarrive@glebe.bromley.sch.uk

Thank you