

FRICITION GAME**KEY STAGE(S):** 1-3**SUBJECT(S):** Science**TOPIC:** Friction, forces**LANGUAGE LEVEL:** New to English - Fluent**RESOURCE CONTENTS**

- Two sets of picture resource cards, movement and other
- Sorting grid
- Substitution table 1 (quite complex)
- Substitution table 2 (differentiated more accessible version)
- Substitution table 3 (support for completing the sorting grid)

CURRICULUM OBJECTIVES

- Identify high friction and low friction from picture resources
- Understand how friction can be useful and not useful
- Understand the effects of friction on movement
- Understand that friction is a force

Language functions **Useful Language**

Classifying	<ul style="list-style-type: none"> • Sentences starting with a gerund (_____ing) • e.g _____ing is/produces low/high friction which ...
Explaining	<ul style="list-style-type: none"> • ... because ...
Asking and answering questions	<ul style="list-style-type: none"> • Why does /do ...? • ... because ...

Vocabulary

- high friction/low friction, produce / produces, useful/not useful
- skidding, turning, braking, oiling, using, sailing, ice skating, skateboarding
- prepositions: on, in
- indefinite articles: a, an
- quantifiers: hardly any, not much, a little, a lot

PREPARATION

You will need:

- Copies of all picture cards and sorting grid for all groups
- Copies of substitution tables for elected learners

You will need to:

- Enlarge the friction sorting grid to A3, and duplicate it for each group undertaking this task and supply each group with both sets of friction picture resource cards

- Duplicate substitution tables and friction picture resource cards as required. The sheets of pictures will need copying or mounting onto card and cutting up, and / or could be laminated to prolong their life.

IDEAS FOR USING THE RESOURCE

This resource could be used:

- As a whole class with differentiated tasks
- One to one or small group, to provide opportunities for talk

What to do

- Learners work in pairs or groups to classify the two sets of picture cards on the sorting grid according to high/low friction and useful/not useful. Encourage learners to discuss their decisions e.g. I think ice skating is/produces low friction and it's useful because ... Organise mixed ability groups where supportive peers provide good language models of English
- Use substitution tables to provide further support and develop sentence structures for EAL learners. This includes support for those requiring help with oral or written sentence construction, using quantifiers and thinking about the effect of friction on movement. There are three substitution tables included in this resource. Substitution Table 1 is quite complex, and Substitution Table 2 is a simpler version of it. Substitution Table 3 is intended to support learners in completing the friction sorting grid.


Other ideas for making the best use of this resource

- Use of learners' first language abilities. Think about grouping children who share their first language so that those with advanced language skills can interpret for others. Completion of the friction grid can take place in first language
- Opportunities for speaking/listening. Using selected picture cards as prompts, ask questions relating to how much friction is produced. Why does slipping on a banana skin produce hardly any friction? Why does striking a match produce a lot of friction? Using selected picture cards as prompts, ask questions relating to the effects of friction on movement. Why does braking on a bicycle make movement slow down or stop? Why does skidding on snow make movement keep going or speed up?
- Ideas for games:
 - Use two sets of the same picture to play pairs (pelmanism). Learners in the very early stages of learning English have practise in using and naming the cards and become familiar with the social language of the game. For example: your go next, turn the card over, does it match?
 - Cut the cards separating the text from the pictures and play a matching game, linking the label to the picture. Learners in the very early stages of learning English find tasks such as this helpful in acquiring language
 - Find other ways to use the -ing form of the verb in the classroom. For example, shutting the window, sharpening the pencils, emptying the bin









POSSIBLE EXTENSION ACTIVITIES

- Find other examples of friction in the classroom. Compare the carpet area to the tiled floor, compare writing on a white board to writing in an exercise book.

Picture resource cards: movement

braking on a bicycle	oiling a bicycle chain	skateboarding	skidding on snow
			
sailing	ice skating	slipping on a banana skin	riding a bicycle with a flat tyre
			

Picture resource cards: movement

writing on sand	opening a bottle	rubbing sticks to make a fire	turning a rusty key
			
striking a match	ten pin bowling	running in trainers with rubber soles	using a rope and pulley
			

Substitution table 1

Braking on a bicycle	produces	hardly any	friction	which is useful	because...
Turning a rusty key					
Skateboarding					
Skidding on snow		not much			
Sailing					
Ice skating					
Opening a bottle		a little			
Rubbing sticks to make a fire					
Writing on sand					
Slipping on a banana skin		a lot of			
Oiling a bicycle chain					
Riding on a bicycle with a flat tyre					
Striking a match		which isn't useful			
Ten pin bowling					
Running in trainers with rubber soles					
Using a rope and pulley					

Substitution table 2

Braking on a bicycle	produces	hardly any	friction,	which makes	movement slow down or stop
Skateboarding		not much			
Ice skating					
Ten pin bowling					
Oiling a bicycle chain					a little
Riding a bike with a flat tyre		a lot of			
Skidding on snow					
Ten pin bowling					

Substitution table 3

Braking on a bicycle	produces	low	friction, which	is	useful.
Turning a rusty key					
Skateboarding					
Skidding on snow					
Sailing					
Ice skating		high			
Opening a bottle					
Rubbing sticks to make a fire					
Writing on sand					
Slipping on a banana skin					
Oiling a bicycle chain	isn't				
Riding on a bicycle with a flat tyre					
Striking a match					
Ten pin bowling					
Running in trainers with rubber soles					
Using a rope and pulley					

Sorting grid

	high friction	low friction
useful		
not useful		

- Main friction image - <https://www.pexels.com/photo/water-no-person-nature-ocean-111200/> CC0 Public Licence
- Bicycle - <https://www.pexels.com/photo/action-active-activity-adult-236958/> CC0 Public Licence
- Bike chain - <https://www.pexels.com/photo/bike-bicycle-chain-closeup-30127/> CC0 Public Licence
- Skateboard - <https://www.pexels.com/photo/person-showing-white-sneakers-and-riding-black-orange-and-white-skateboard-24121/> CC0 Public Licence
- Car in snow - <https://www.pexels.com/photo/white-mercedes-benz-car-on-white-snow-covered-ground-at-daytime-215529/> CC0 Public Licence
- Sailing - <https://www.pexels.com/photo/waves-boat-sailing-dinghy-76978/> CC0 Public Licence
- Skating - <https://www.pexels.com/photo/playing-sport-game-competition-33286/> CC0 Public Licence
- Banana peel - <https://www.pexels.com/photo/slippery-foot-dangerous-fall-36763/> CC0 Public Licence
- Woman on bike - <https://www.pexels.com/photo/activity-beach-beautiful-bicycle-319928/> CC0 Public Licence
- Sand writing - <https://www.pexels.com/photo/beach-coast-island-landscape-348520/> CC0 Public Licence
- Bottle opening - <https://www.pexels.com/photo/beer-bottle-opening-288476/> CC0 Public Licence
- Fire - <https://www.pexels.com/photo/focus-photography-of-a-ignited-firewood-167701/> CC0 Public Licence
- Old key - <https://www.pexels.com/photo/selective-photography-of-skeleton-key-hanging-217316/> CC0 Public Licence
- Match - <https://www.pexels.com/photo/wood-fire-hot-glow-21462/> CC0 Public Licence
- Bowling - <https://www.pexels.com/photo/shiny-bowling-balls-53115/> CC0 Public Licence
- Running - <https://www.pexels.com/photo/man-wearing-black-adidas-nmd-while-walking-177644/> CC0 Public Licence
- Rope and pulley - <https://www.pexels.com/photo/brown-rope-on-a-pulley-69756/> CC0 Public Licence