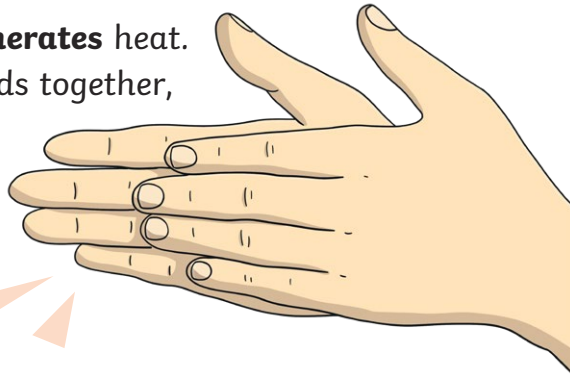


What Is Friction?

Friction is a **force** that acts between two **surfaces** or objects that are moving, or trying to move, across each other.

Whenever objects come into contact and move across one another, **friction is generated**. **Friction** always acts in the opposite direction to the direction that the object is moving in and it always slows a moving object down.

Friction also always **generates** heat. When you rub your hands together, they start to feel warm because of the heat produced by **friction**.



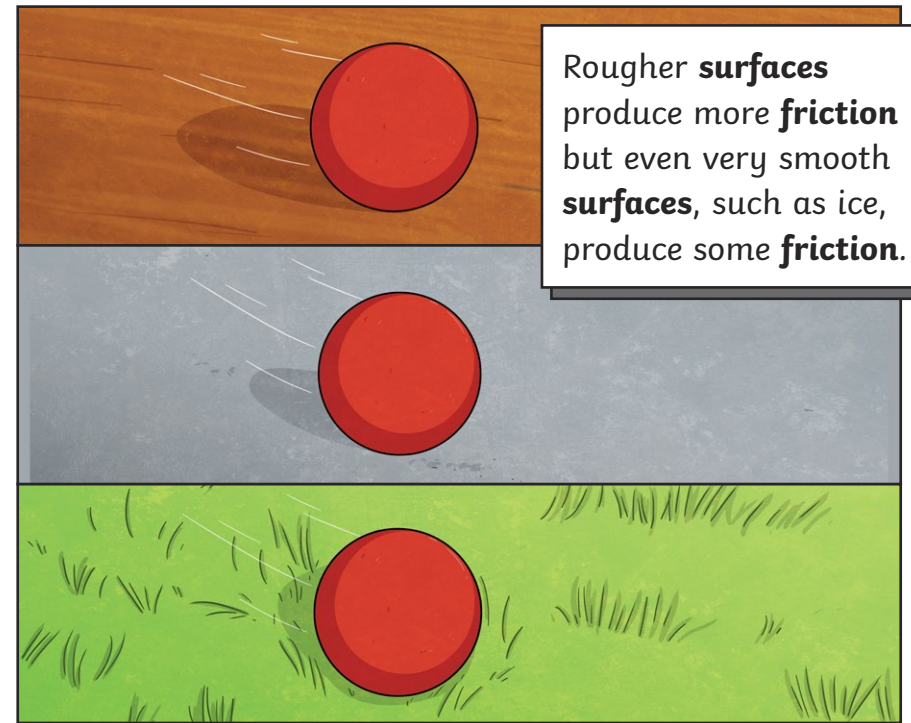
Have a Go...

Interlock the pages of two books and then try to **pull** them apart. They will be extremely difficult to **pull** apart due to the **friction generated** by the pages.



Surfaces

All surfaces create **friction** on an object moving across them; however, different **surfaces generate** different amounts of **friction**.



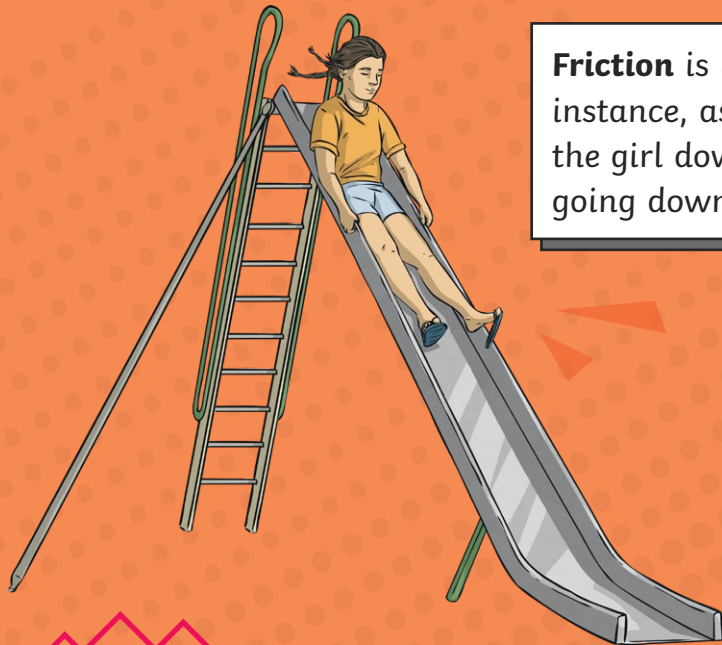
Rougher **surfaces** produce more **friction** but even very smooth **surfaces**, such as ice, produce some **friction**.

If you roll a ball across three different **surfaces**, it will travel different distances depending on the level of **friction generated**. On a gym floor, where **friction** is low, the ball is likely to roll the furthest. However, on a grassy **surface**, where **friction** is higher, the ball will travel the shortest distance.

Helpful and Unhelpful Friction

As with any **force**, there are occasions when friction can be a helpful **force** and occasions where it can be an unhelpful **force**.

Friction is unhelpful in this instance, as it is slowing the girl down as she is going down the slide.

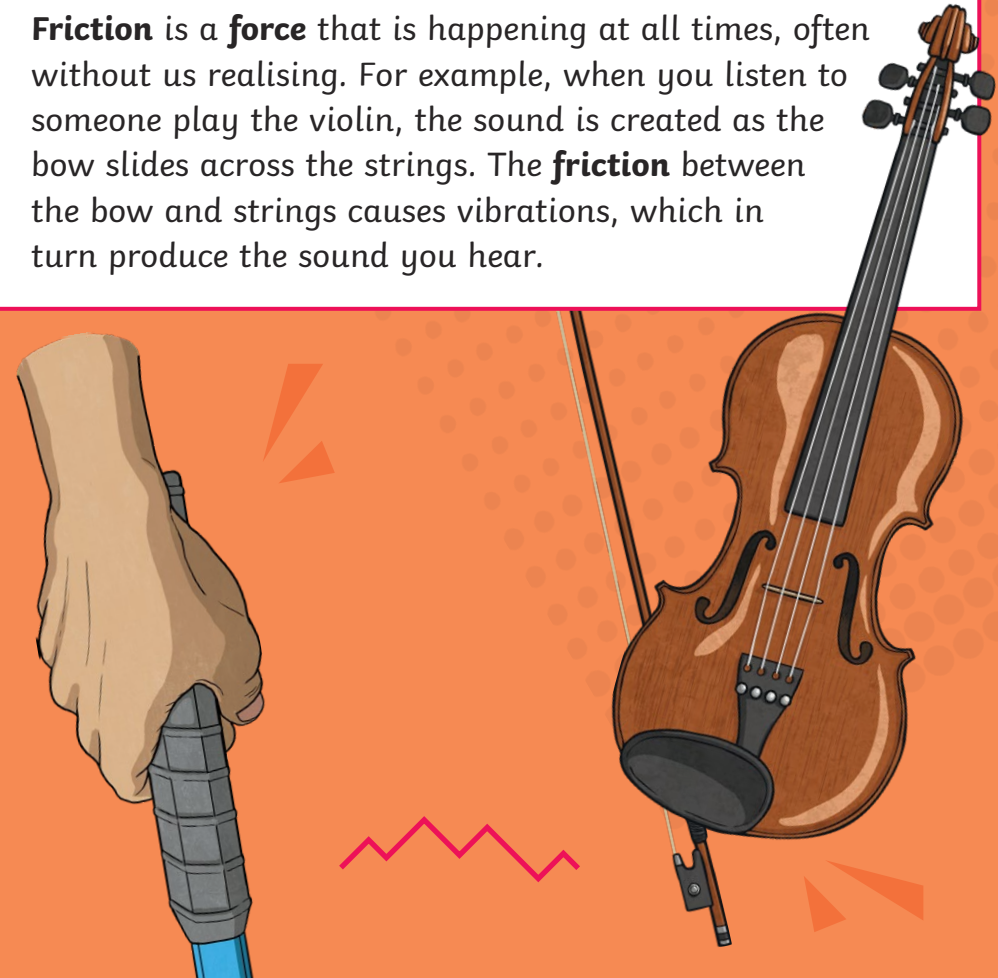


Friction is helpful in this instance, as the tread on the sole of the shoe **generates friction** with the ground, preventing a person from slipping over.



Friction Examples

Friction is a **force** that is happening at all times, often without us realising. For example, when you listen to someone play the violin, the sound is created as the bow slides across the strings. The **friction** between the bow and strings causes vibrations, which in turn produce the sound you hear.



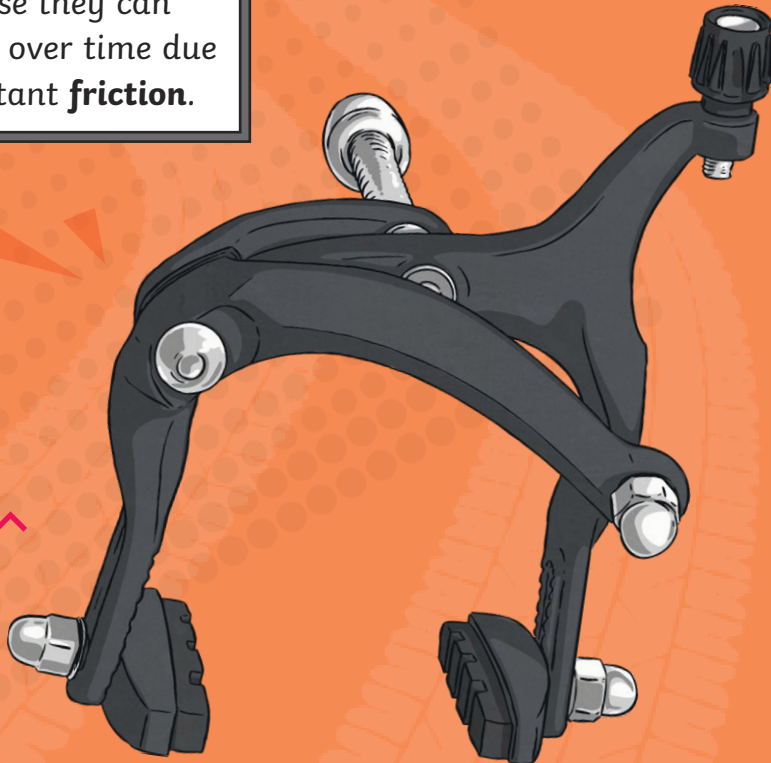
In sports, even something as simple as the rubber grip on a tennis racket handle creates enough **friction** to ensure a secure grip, helping the player maintain control during the game.

Bicycle Brakes

A bicycle relies on helpful **friction**, especially when it comes to its brakes. When the brakes are applied, the brake pads squeeze together and grip the edge of the wheel.

This gripping action increases the amount of **friction** being **generated**, which helps to slow the bicycle down or bring it to a complete stop.

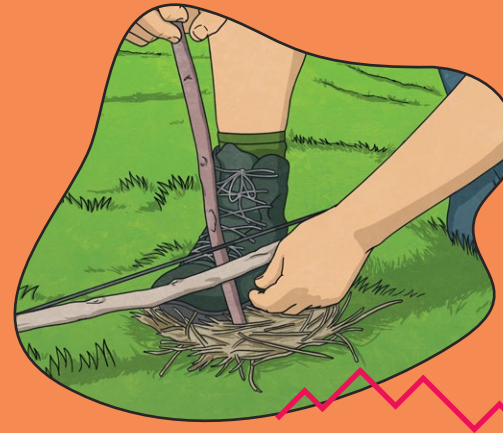
It is important to regularly check the brake pads because they can wear down over time due to the constant **friction**.



Fire Lighting and Friction

As we know, **friction** generates heat, making it a valuable tool for fire lighting throughout history.

In the Stone Age, people discovered that striking pieces of flint together would create heat and sparks that could ignite a fire. The sparks and heat were produced by the **friction** generated when the flint pieces were struck against each other.



Another common method of fire lighting involves using a bow to create **friction** between two sticks. The **friction** generates heat, which eventually leads to starting a fire.

Similarly, matches rely on the **friction** caused by running the match along the side of the box, igniting the chemicals at the match's tip.

