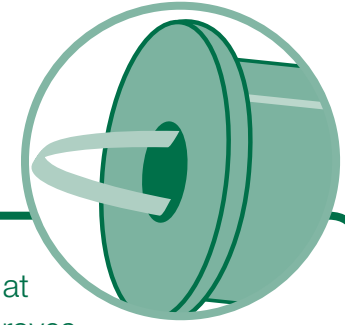




Band rollers

★ What do I do?



1. Read the ACTIVITY CARD to familiarise yourself with the activity.
2. Check the Resources list – see overleaf.
3. Set the scene by discussing the news story. Share examples of clockwork objects with the children.
4. Give children time to explore clockwork toys and how they work. Encourage them to think about why they might be environmentally friendly.
5. Give them the equipment to make their rollers. Some children may need help to follow the instructions.
6. Encourage small groups of children (2 or 3 is best) to decide how they are going to investigate which factor makes the most difference.

7. They need to change one factor at a time to try to find out what improves the toy e.g. size of the band, number of winds, size of the roller, the surface.
8. Let the children race the band rollers. Let them decide what makes it the winner – is it the one that travels fastest or furthest, or a bit of both?
9. Encourage them to discuss what made a difference and how the rollers could be improved.
10. They could draw pictures of the best designs or make a bar chart of the results.
11. There are extra challenges on the ACTIVITY CARD. You can use these if there is spare time or if the children want to try out more ideas at home and earn a bonus sticker.

★ Handy hints

Background information

- ★ The band roller moves because energy is stored in the stretched elastic band. As the band unwinds the energy is released. This energy can move the roller. Clockwork toys work in a similar way by storing energy in a spring. Clockwork toys are designed to release the energy steadily. This can be more difficult to achieve with elastic bands.
- ★ Several things will affect the movement – different surfaces around the roller or on the ground (due to friction), slope, length and thickness of the elastic band and friction in parts of the roller. The number of twists on the elastic band is generally a key factor in how the band roller travels.

Resources

- ★ Selection of clockwork toys or other technology e.g. clockwork radio, torch
- ★ Cotton reels
- ★ Candles (cut into 1 cm pieces)
- ★ Matchsticks
- ★ Elastic bands of different lengths and thicknesses – not too long
- ★ Measuring tapes or sticks
- ★ Timers
- ★ Materials to stick on the roller (optional)
- ★ See website for other band roller suggestions www.britishsociety.org/creststar

Things to look out for

- ★ If the roller is not moving smoothly try rubbing the candle on the side of the cotton reel.
- ★ Very long elastic bands may be too long to hold the roller together.
- ★ Once the rollers are working, it is possible to count the number of winds and to look at the relationship between winds and distance.
- ★ It is possible to change the surface of the roller (add foam strips etc.) to look at the effects of friction.

Safety

- ★ Take care when winding up the elastic bands to not over-tighten them so that they snap.

