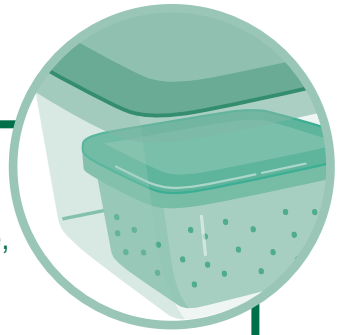
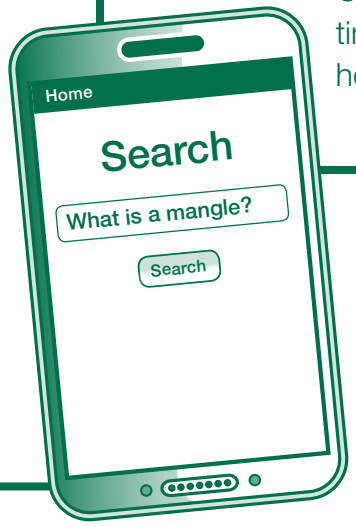
Spinning solutions

★ 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 Richie's question. Encourage the children to talk about how they dry washing at home.
4. Children may not know what a mangle is. Show them a picture or video. Can they explain how it works?
5. Provide materials to make models of mangles and washing machine drums. There are photos of what these could look like on the CREST Star website www.britishscienceassociation.org/creststar
6. When testing the washing machine drums children should spin the bags at their side in a big circle up past their ears and down past their knees.
7. Give children an opportunity to try out both models. This is a great activity to do outside. Otherwise a large room (e.g. a hall) allows plenty of space for spinning.
8. Children can discuss how to make this a fair test and groups may decide to vary size, number, distribution or even type of hole.



9. Ask children to compare the water measurements by pouring the water from each model into a measuring jug.
10. Encourage children to talk about the results. Which model works best?
11. Children can use photographs as a record of what happens. Sending these to Richie offers an opportunity to share their ideas.
12. More information about separating by spinning can be found at www.learnwithrichie.com.
13. There are extra challenges on the ACTIVITY CARD. These can be used if there is any spare time or if children want to try out more ideas at home and earn a bonus sticker.



SuperStar

★ Handy hints

Background information

★ Mangles work by compressing fabric and squeezing the water out. Washing machines use centrifugal force as they spin to move the water to the outer container away from the fabric.

★ Centrifugal force causes the thing being spun to move away from the centre of the circle. A centrifuge spins rapidly so that heavier liquids or objects separate out from lighter ones. Lots of things can be separated in this way. They are used to analyse blood and to create nuclear fuel to make electricity.

★ Children can learn more about how centrifugal force can help to generate nuclear fuel for electricity by visiting www.learnwithrichie.com. Richie is a character who helps children learn about where electricity comes from.

Things to look out for

★ The washing machine drums do not need to be spun very quickly for the investigation to be effective. Spinning in a larger, slower circle also works well.

★ The simplest way to make a model mangle is to lean a flat board in a plastic tray so it is propped up on one end. Then use a rolling pin to roll the fabric. The water collects in the tray.

★ The simplest way to make a centrifuge is with two lidded polystyrene or paper cups. One needs to fit inside the other. Use a sharp pencil or compass, supervised if necessary, to make holes in the side of the smaller cup and place it inside the bigger one. Put wet fabric inside the smaller cup and put both lids on. When spun round in a bag the water will gather in the bigger cup.

Safety

★ This activity should be done in an area where children have lots of space around them to spin their models safely.

★ Spilt water should be mopped up quickly to avoid accidents. Children should wear aprons or suitable clothing to avoid splashes.

★ Carefully consider group size due to physical nature of activity.

Resources

★ Different-size containers with lids, so the smaller fits inside the larger container (polystyrene or paper cups work well)

★ Plastic or canvas bags

★ Absorbent fabric – e.g. dishcloths or flannels

★ Rolling pins

★ Flat boards

★ Plastic trays

★ Measuring jugs or cylinders

★ Camera or other device to take photographs.

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