



# STAR

# Be Seen Be Safe

## Organiser's Card



## About the activity

This activity is designed to get children thinking about reflection and light.

Gem has a new bike! Children are asked to help Cosmic and Gem to find out if they can wear something that will help them be seen in the dark.

Through this activity you will support children to:

- Test different materials to see how reflective they are
- Test to see if other variables make a difference to reflectivity
- Record their results and share them with the group.

## Kit list

You can use whatever is available at home.

- A selection of different materials e.g. different coloured T-shirts or fabrics, reflector armbands, foil, shiny paper, black paper, dark/light coloured objects
- Torches
- A place that you can partially blackout

## What to do

1. Introduce the activity using the story of Cosmic and Gem. Ask the children what they think will help them to be seen in the dark. Give out activity cards and equipment to the children.
2. Explain that they will be using the equipment provided to test the best way to be seen in the dark.
3. Encourage children to discuss their ideas and how to carry out their investigations. Prompt questions:
  - What materials will they test?
  - How will they test to see if they are reflective?
  - How will they make sure their test is fair?
  - How will they record their results?
4. Support children to conduct their tests and make their own records of their results.
5. Ask the children to present their findings to the rest of the group, they can be as creative in their presentation as they want.

# Things to think about

Some things produce light, e.g. a lamp, the Sun. We call these light sources. Other things can reflect light, but they don't produce light of their own, e.g. a mirror, aluminium foil, a white T-shirt. We call these reflectors. Some colours reflect more light than others. White is easier to see than red; red is easier to see than black.

Reflectors will be seen if there is a source of light. Even on a 'dark' night there is usually light around, especially in towns. A good reflector may be visible on a dark night because of this. Cat's eyes and reflective strips will also reflect the lights of cars. So Cosmic and Gem will need to wear something light coloured or shiny to be safe in the dark. They also need to get lights on their bikes.

## Keywords

- Reflection
- Source
- Light
- Safety

## Watch out!



Make sure that children are not wandering around in the dark with sharp objects.

Make sure that the area is cleared of obstacles and dangerous substances





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## Activity Card

It is a great day for Gem. Her new bike has arrived. She is going for a ride with Cosmic to visit Aunt Stella. She puts on her favourite black tracksuit and pedals off to meet Cosmic.

A little later, Aunt Stella is SO worried. It's gone as dark as night outside. Where are they?

Suddenly there's a loud knock, rat-a-tat-tat, on the door.

Oh no! It's a policeman with Gem and Cosmic. They are looking very sheepish.

"I nearly knocked these two off their bikes," grumbles the policeman. "They were riding round, no lights and just look at what they are wearing! No wonder I couldn't see them."

"Oh dear!" says Aunt Stella. "We need to make sure you can be seen and be safe in the dark. Now I wonder what we could do? I think we may need some help."



## Your challenge

Find out if Gem and Cosmic can wear something that will help them to be better seen in the dark.

Cosmic thinks they need to wear something shiny

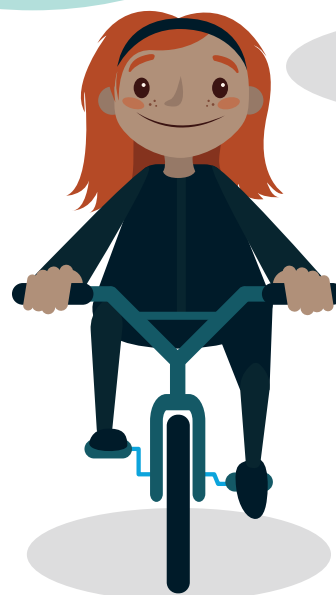
Gem doesn't think what we wear makes a difference

Aunt Stella thinks they need to wear something white

**What do you think?**

## Discuss

- Why do you think Gem and Cosmic couldn't be seen?
- Was it just because they didn't have lights on their bikes?
- Have you noticed what you can see in the dark?
- How will you find out if different materials can be seen in the dark?
- What will you do to make sure it is a fair test?



# Getting started

You need to compare how well each material can be seen. Make a dark space by drawing curtains, working in a corridor or other dimly lit area, to help you see the difference between good and bad light reflectors.

Which materials can you see the best?

What difference does having more light make? What can you see in complete darkness?

Do some colours work better than others?

# Test your ideas

Make a table to record your results.

Material	How well does it reflect?		
	Complete darkness	A little bit of light	A lot of light
Shiny material			
White material			
Dark material			

# Share your ideas

How did your investigation go?

Was there anything you could have improved about your test?

Why not design something for Cosmic and Gem to wear?

# Extra things to do

Find out if you can see reflectors in total darkness.

Design a warning poster to help children to be safe at night.

