

smart
Science



Hedgehog Crime Scene

Creativity & Problem Solving: to consider Why? How? and What if...?

Investigative skills: to make comparisons between pieces of evidence

Activating Personal Capabilities in Science



Generic task

If... Then...



Learning Objective

Creativity & Problem Solving: to consider Why? How? and What if...?

Introducing the task 5 minutes

Explain that part of thinking creatively and solving problems involves us foreseeing what could happen in different situations. Reinforce that spending a few minutes thinking about 'If... then' or 'What if...?' questions before we tackle a problem can help us make good decisions and predict what might happen.

This task poses lots of different 'If... then...' scenarios which encourage the children to think about different possibilities. Tell the children that they should think freely and give a quick response to this task.

Running the task 20 minutes

You need: 'If... then...' cards, a partner or group.

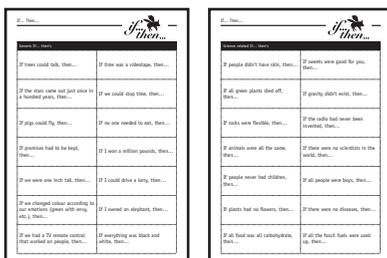
- 1 Organise the children into pairs or teams of up to four.
- 2 Hand out some 'If... then...' cards.
- 3 Tell the children that they have two minutes to ask 'What if...?' and suggest as many consequences (the 'then's) as possible for a variety of 'If... then...' scenarios.
- 4 Ask them to think of other scenarios if they can.

Helpful Hints

This task is useful in developing the skill of prediction that is a necessary science process skill. If you wish to further develop this task, children could be encouraged to create stories or cartoon strips to illustrate their 'If... then...' thinking; or to extend the 'If... then...' thinking to a range of investigation scenarios.

*Some of the suggested ideas are from 'Imagine That... A Handbook of Creative Learning Activities for the Classroom'

Resources





Creativity & Problem Solving: to consider Why? How? and What if?



Science embedded task

Hedgehog Crime Scene



Learning Objectives

National Curriculum

Sc1: 2i, 2j

Science Investigative Skills

to make comparisons between pieces of evidence
to draw conclusions that are consistent with the evidence

Success Criteria

To be successful the children will:

- describe and explain how they think things happen
- consider 'what if...'
- compare evidence from different sources and consider their value
- reach a conclusion based on consideration of evidence and other people's views.

Introducing the task 5 minutes

Explain that this challenge is about thinking creatively to solve a problem (relate this back to the generic task). They will look at different sources of evidence and consider 'Why?' 'How?' and 'What if...?' As a team they will aim to reach a conclusion.

Running the task 40 minutes

- 1 Organise the children into teams of four.
- 2 Read through or hand out Hedgehog Crime Scene. Explain the task and set a time limit of 10 minutes. Use the Possible Cause of Injury Support Cards to help this process as appropriate.
- 3 After 10 minutes take feedback from the teams on how they think the injuries were caused, making a class tally chart showing the choices offered.
- 4 Then tell the children that extra evidence about the crime scene has been found. Read aloud or hand out Additional Evidence 1 and 2. Make sure everyone understands the new task. Set a time limit (15 minutes is suggested).
- 5 Later, take feedback from the teams, asking the children to explain and justify their conclusions as fully as possible. Decide as a whole class the most likely cause of injury. There's not one specific answer to this question. The evidence from his parents suggests that it is unlikely that Norman was run over or was attacked.

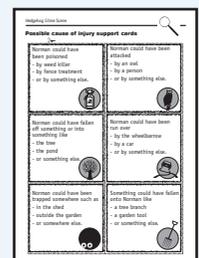
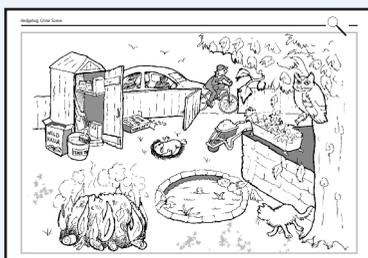
The fact that he is small and gets cold easily and is not a good swimmer suggests that he might have fallen in the pond. There are poisonous substances in the garden but the fact that Mrs Hog says he was careful not to pick up things that hurt him makes this cause of injury less likely.

Reviewing the task 15 minutes

Review the task by emphasising the idea that in a complex situation like this, open questions, such as 'Why?' 'How?' and 'What if...?' can be useful to consider different possibilities in a problem-solving situation. They help us think more freely and creatively about the options. When new evidence is found it may affect people's first thoughts or conclusions and it is important to review this with an open mind and share views as a team.

Involve the children in reviewing their work and making an overall judgement about how well they used creative thinking to help solve the problem. Use the assessment for learning Smart Grid (see back cover).

Resources



If... Then...



Generic If... then's	
If trees could talk, then...	If time was a videotape, then...
If the stars came out just once in a hundred years, then...	If we could stop time, then...
If pigs could fly, then...	If no one needed to eat, then...
If promises had to be kept, then...	If I won a million pounds, then...
If we were one inch tall, then...	If I could drive a lorry, then...
If we changed colour according to our emotions (green with envy, etc.), then...	If I owned an elephant, then...
If we had a TV remote control that worked on people, then...	If everything was black and white, then...

If... Then...



Science related If... then's	
If people didn't have skin, then...	If sweets were good for you, then...
If all green plants died off, then...	If gravity didn't exist, then...
If rocks were flexible, then...	If the radio had never been invented, then...
If animals were all the same, then...	If there were no scientists in the world, then...
If people never had children, then...	If all people were boys, then...
If plants had no flowers, then...	If there were no diseases, then...
If all food was all carbohydrate, then...	If all the fossil fuels were used up, then...

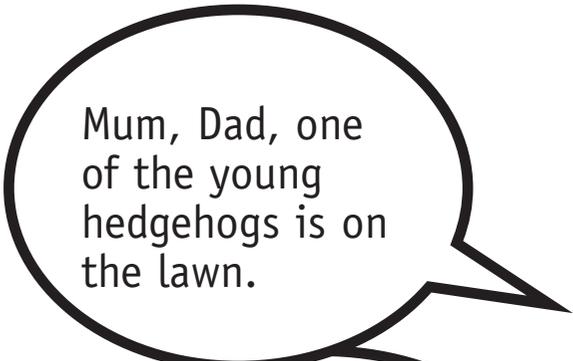
Hedgehog Crime Scene



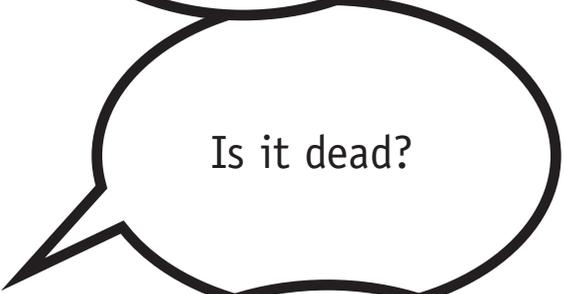




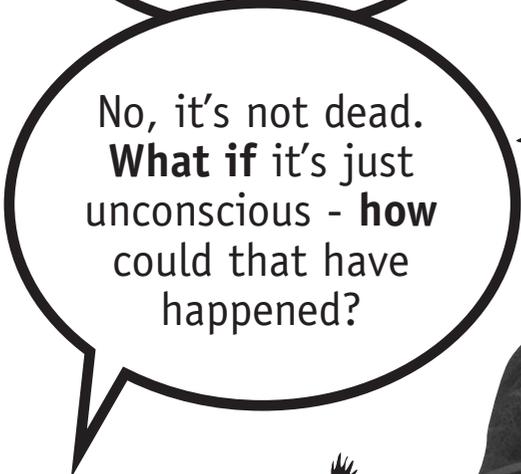
Hedgehog Crime Scene



Mum, Dad, one of the young hedgehogs is on the lawn.



Is it dead?



No, it's not dead.
What if it's just unconscious - **how** could that have happened?

A family of hedgehogs had been visiting the garden for the last few months. Look at the picture of the hedgehog crime scene.

In your team make a list of all the possible causes of injury you can identify.

e.g.

What if... a tree branch fell on his head?

Discuss your list and decide on the two causes of injury that you think are most likely.





Additional Evidence 1

Evidence from interview with Mr H Hog.

Norman is an adventurous hoglet, always running about but he never went on the road. I don't think he could have been run over like his granny, she was as flat as a pancake!

Like most hedgehogs he is a keen climber and never falls off things but he isn't a very good swimmer.

In your teams, discuss this extra evidence.

- Now, decide which cause of injury you think is the most likely, and explain why by looking at all the evidence.
 - What does the picture tell you about this cause of injury?
 - Does anything Mr Hog says support this cause of injury?
 - Does any science knowledge you have help you understand and explain this cause of injury?

Mr Hog



Think of what extra evidence you would collect to try and confirm your prediction. Use the question, **What if...?**

Prepare a brief report to present your conclusions to others.



Additional Evidence 2

Evidence from interview with Mrs H Hog.

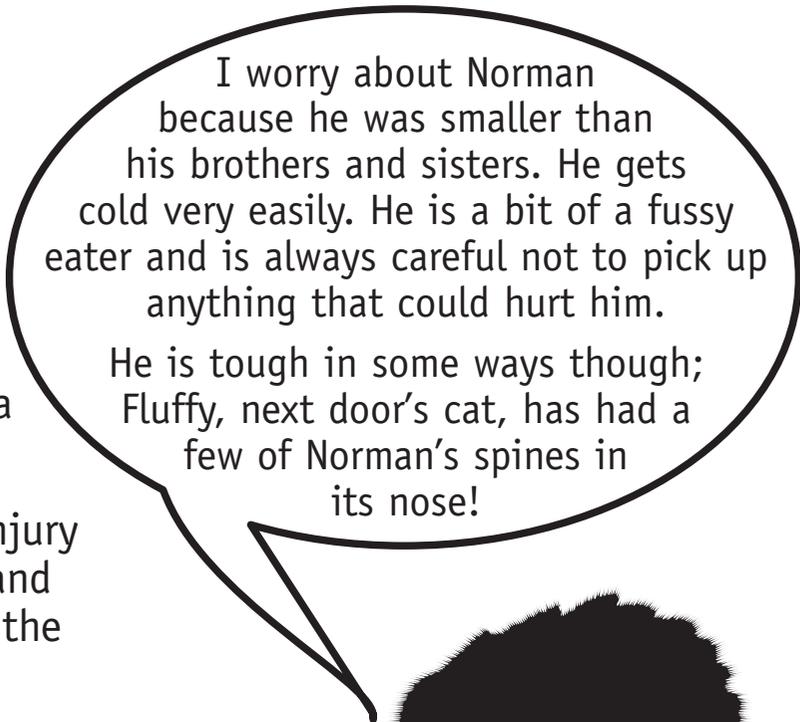
In your teams discuss this extra evidence.

- Now, decide which cause of injury you think is the most likely, and explain why by looking at all the evidence.

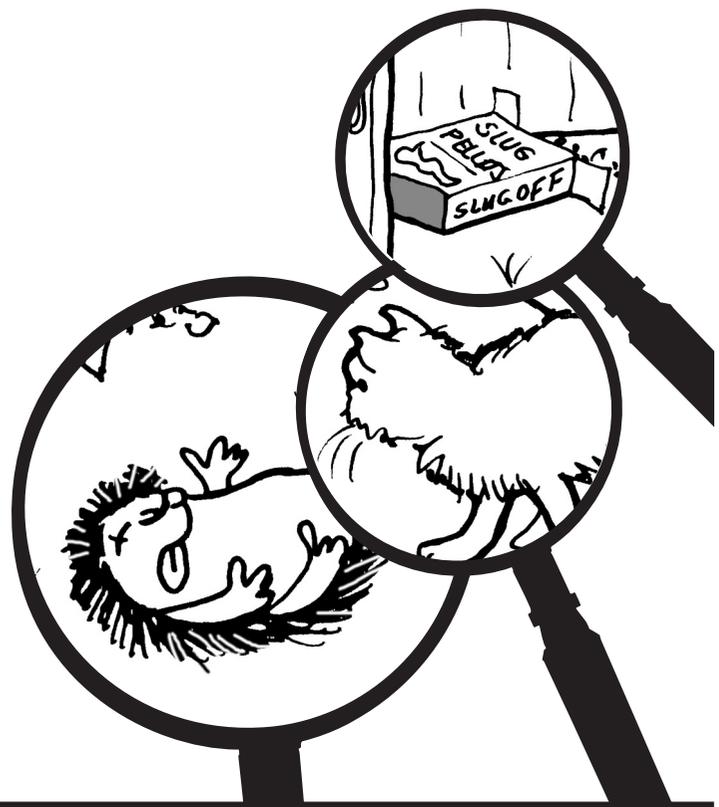
- What does the picture tell you about this cause of injury?
- Does anything Mrs Hog says support this cause of injury?
- Does any science knowledge you have help you understand and explain this cause of injury?

Think of what extra evidence you would collect to try and confirm your prediction. Use the question, **What if...?**

Prepare a brief report to present your conclusions to others.



Mrs Hog



Hedgehog Crime Scene



Possible cause of injury support cards



Norman could have been poisoned

- by weed killer
- by fence treatment
- or by something else.



Norman could have been attacked

- by an owl
- by a person
- or by something else.



Norman could have fallen off something or into something like

- the tree
- the pond
- or something else.



Norman could have been run over

- by the wheelbarrow
- by a car
- or by something else.



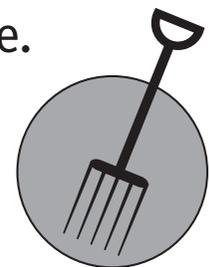
Norman could have been trapped somewhere such as

- in the shed
- outside the garden
- or somewhere else.



Something could have fallen onto Norman like

- a tree branch
- a garden tool
- or something else.



smart grid

Assessment
for Learning

Hedgehog Crime Scene



Thumbs Up

We were great at the task because...



Thumbs Sideways

We were good at the task because...



Thumbs Down

We were OK at the task because...

we described and explained how we thought things happened.

we considered 'What if...?' e.g....

we compared evidence from different sources, e.g....

we considered the value of different pieces of evidence.

we reached a possible conclusion by...

we...

Next time we will...

Smart Science is the only teaching pack to bring together Personal Capabilities and scientific enquiry.

Infusing teamwork, creativity, problem solving, communication and self management into fun contexts through generic and science embedded tasks. Incorporating *Assessment for Learning*, this pack provides an exciting way to motivate, engage and raise achievement in Primary Science.

Additional resources for other age groups can be found on our website www.smart-science.co.uk

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