

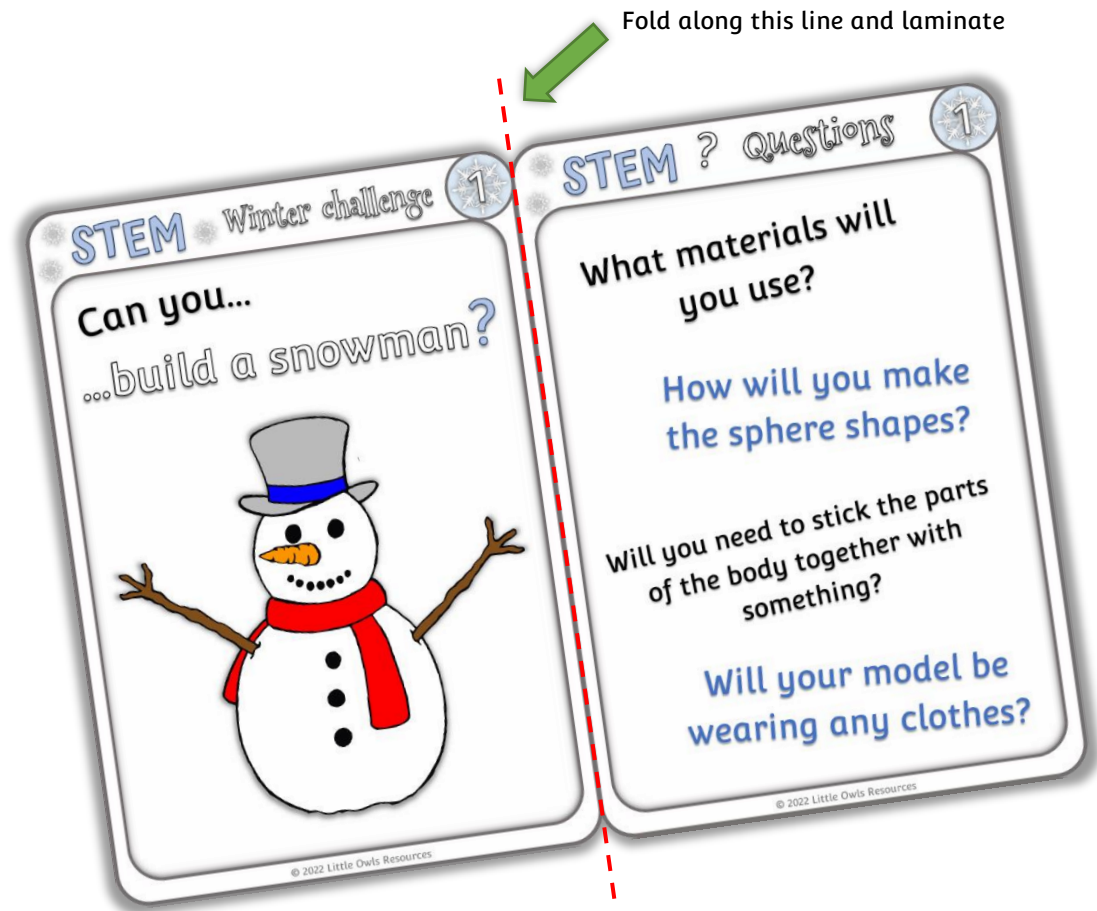
STEM

Winter challenge cards

These cards are to be used as prompts for a winter themed **STEM** session.

(**S**cience **T**echnology **E**ngineering and **M**athematics)

The challenges are intended to be open ended and non-specific to encourage independent thinking in the children.



STEM Winter challenge

1

Can you...
...build a snowman?



STEM ? Questions

1

What materials will
you use?

*How will you make
the sphere shapes?*

Will you need to stick the parts
of the body together with
something?

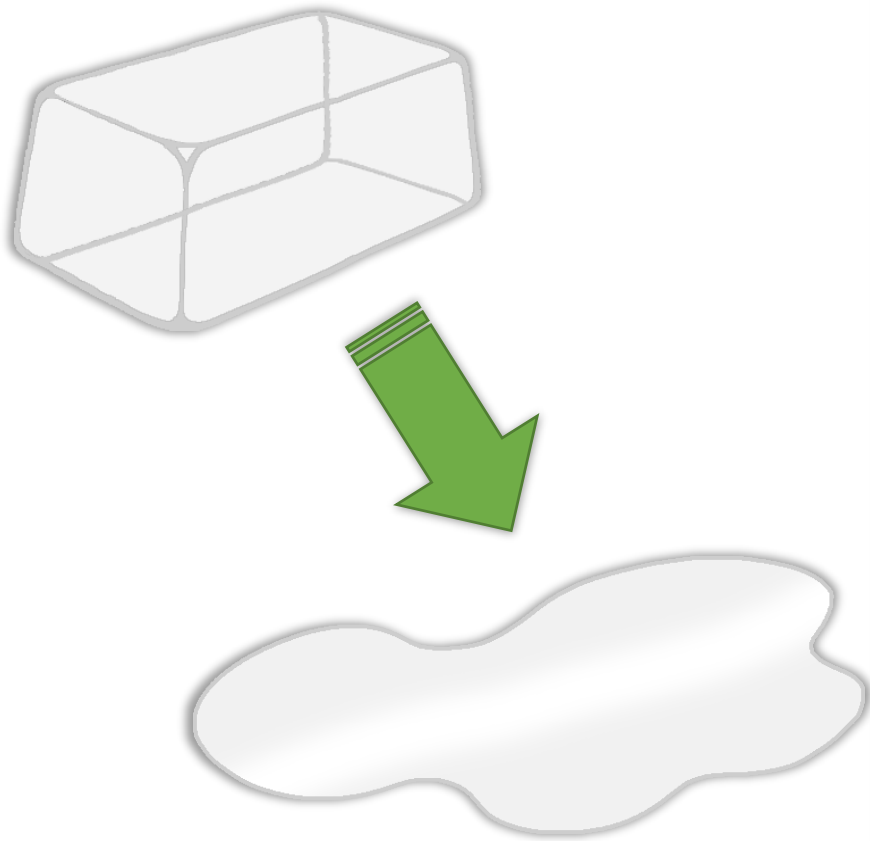
*Will your model be
wearing any clothes?*

STEM Winter challenge

2

Can you...

...melt ice?



STEM ? Questions

2

Was your ice found outside on a very cold day or was it created in a freezer?

How long did it take you to melt your ice?

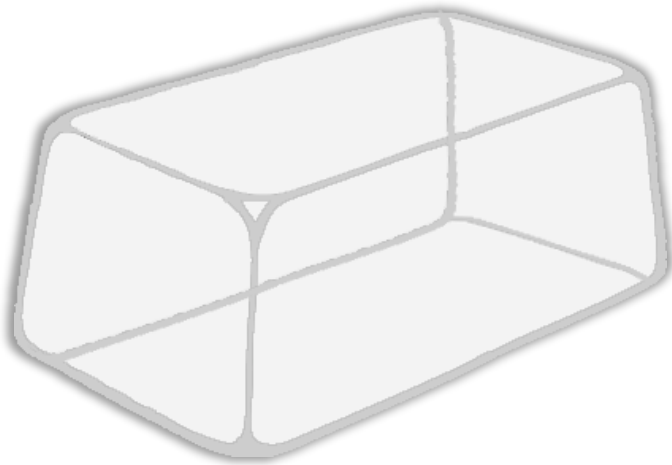
Do you think you could melt it any quicker next time? What could you change to speed it up?

STEM Winter challenge

3

Can you...

...make ice?



STEM ? Questions

3

What will you need?

How long will it take?

How can we protect ourselves when handling ice?

STEM Winter challenge

4

Can you...

...investigate animals that hibernate during the cold weather?



STEM ? Questions

4

How can you find out about hibernation?

Do all animals hibernate?

Do any insects hibernate?

Can you find any evidence of hibernation in your outdoor area or in a park or forest?

STEM Winter challenge **5**

Can you...

...build a home for
wildlife in the winter?



STEM ? Questions **5**

**Will you build a home for
real wildlife or your toys?**

*Will it be for birds, small
mammals, or insects?*

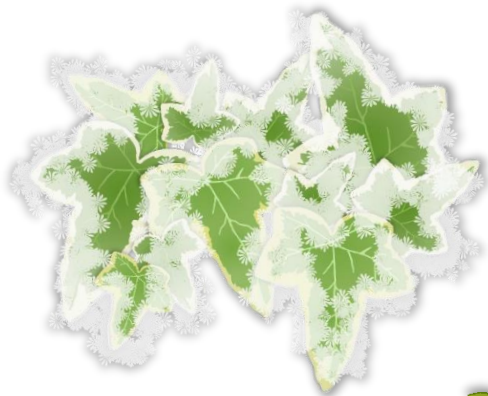
**What materials and
equipment will you
need?**

STEM Winter challenge

6

Can you...

**...investigate plants in
the wintertime?**



STEM ? Questions

6

**What plants grow in
the winter months?**

*Can you find any plants in
your garden, outdoor area,
local park, or forest?*

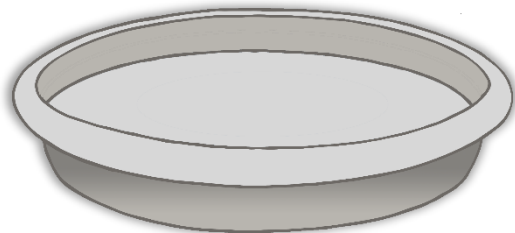
**How are the winter plants
different from plants
growing in the warmer
months?**

STEM Winter challenge

7

Can you...

...collect some
rainwater?



STEM ? Questions

7

What will you use to
collect some rainwater
in?

*Where is the best place
to leave your collector?*

How could you measure
how much water you
have collected?

STEM Winter challenge

8

Can you...

..investigate animals/birds you might see during the wintertime in your area?



STEM ? Questions

8

Can you find out what animals/birds to look out for using the internet, books or by talking to an adult?

Can you find any of these animals in your garden, outdoor area, local park, or forest?

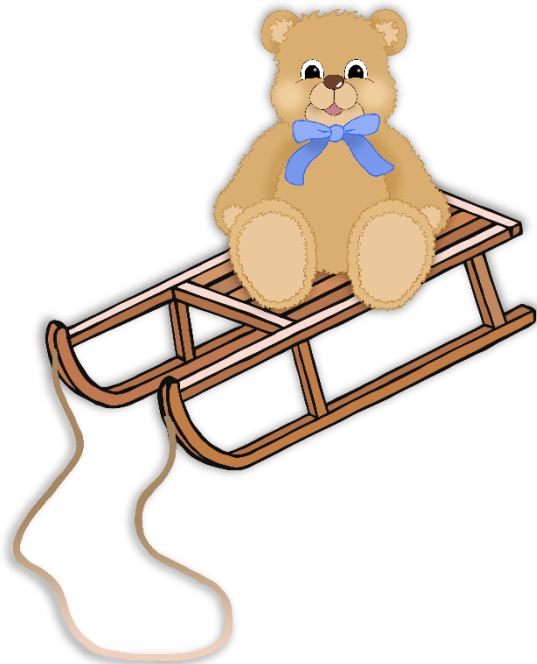
Can you find any evidence that these animals are nearby? *E.g. droppings, pawprints, nibbled food.*

STEM Winter challenge

9

Can you...

...design and build a sled/sledge to pull along one of your toys?



STEM ? Questions

9

What size will it need to be?

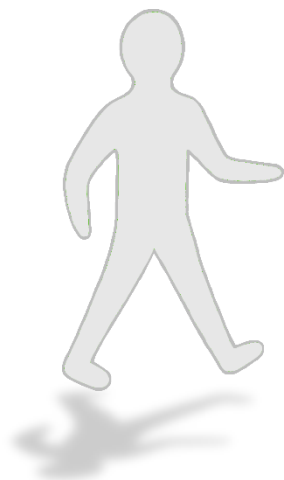
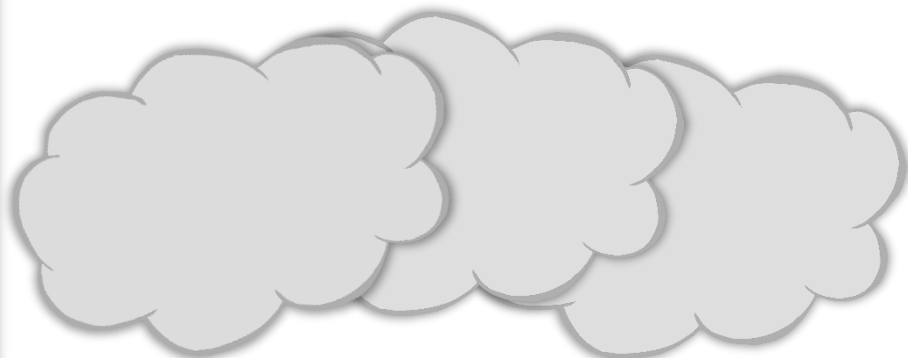
What materials and equipment will you use?

Does your sled/sledge slide smoothly along the floor?

STEM ❄️ Winter challenge 10

Can you...

...make a shadow on a cloudy day?



STEM ? Questions 10

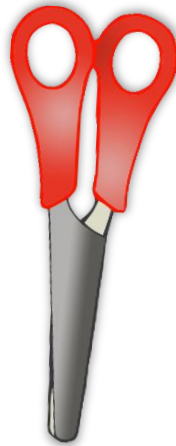
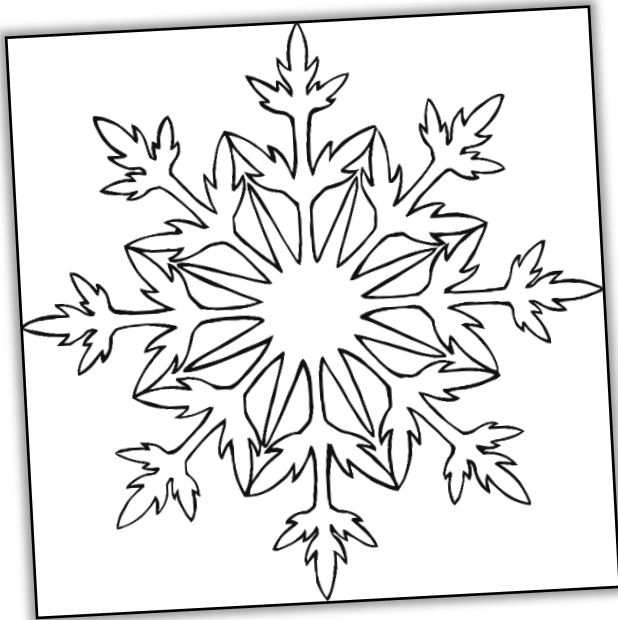
**Is it more difficult to make a shadow on a cloudy day?
Why?**

How could you make a shadow indoors?

What will you need to make a shadow?

Can you...

...make a paper snowflake?

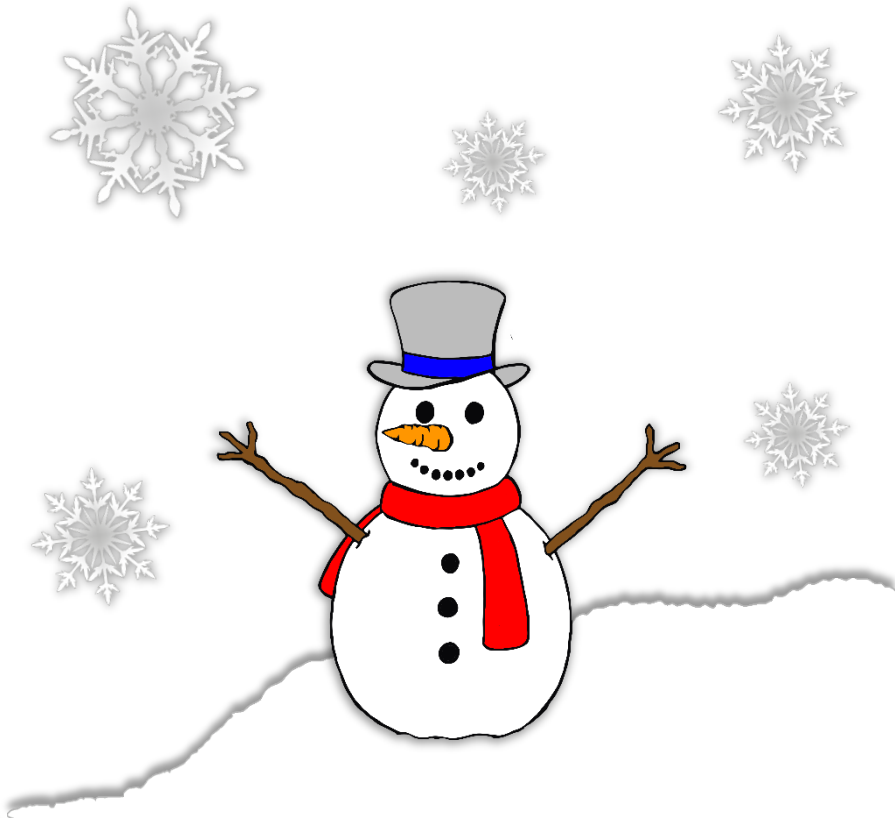


How can you make a paper snowflake? Ask an adult to help you.

What shapes do you see in your snowflake?

Can you...

...design and build a
wintery diorama/scene?

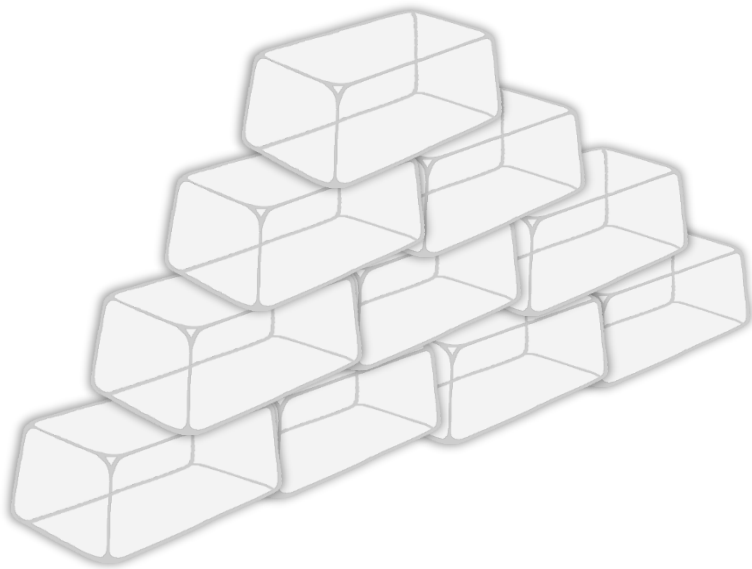


What materials will
you use?

- Junk modelling
- Playdough
- Dolls
- Blankets
- Small world toys
- Building blocks

Can you...

...build something
using ice cubes?



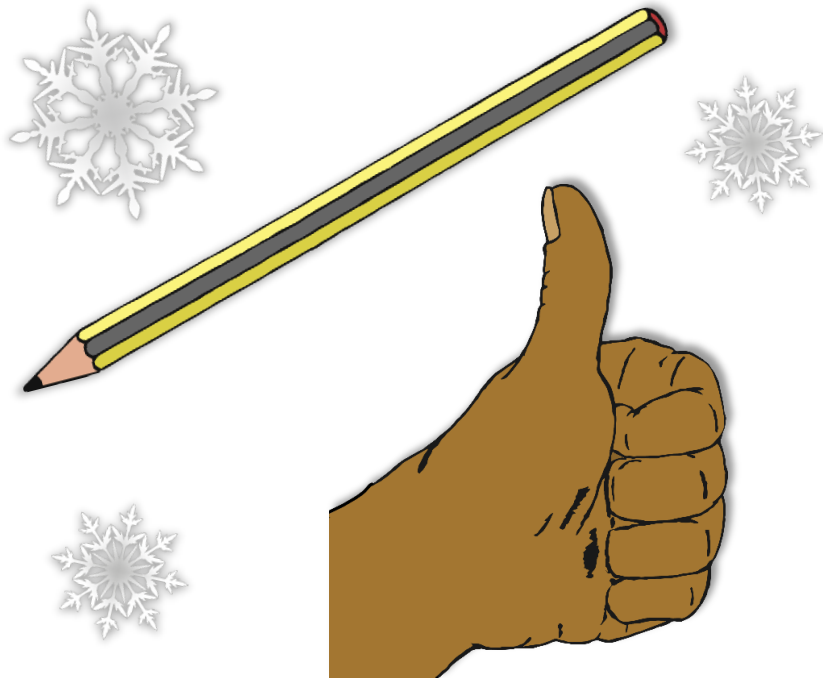
How can we protect
ourselves when
handling ice?

How many ice cubes
did you use?

STEM Winter challenge 14

Can you...

...design and build something that would be useful in the winter?



STEM ? Questions 14

How would your idea be useful?

Can you draw your idea?

What materials do you need?

How will you stick the materials together?

STEM ❄️ Winter challenge ❄️

Can you...

STEM ? ❄️ Questions ❄️