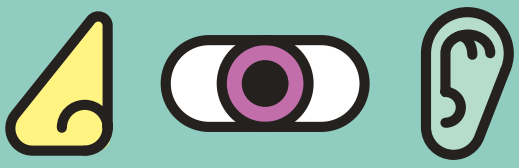
FLYING FISH

There once were two little fish,
who still had a lot to learn;
they decided to fly to the moon and see,
if they could build a nest in a giant tree.
Time to go! They swam onto land
and dug their launchpads in the sand.
But – dear oh dear – they got nowhere near!
And we all know why –
fish can't fly.



Let's think about flight!

This exercise involves critical thinking skills, as well as searching for and presenting information.

Discuss what fish would need in order to fly. Draw a mind map on the subject of flight: which living things can fly? Which man-made things can fly? Together, use various sources to investigate how various flying things are able to take off. Draw pictures and/or write text on the mind map to record the results of your investigation.

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Ministry of Education and Culture

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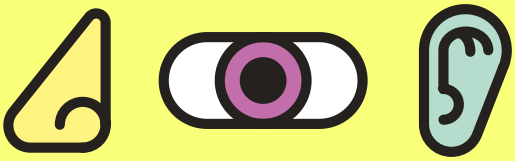
Authorship and pedagogical design: Jenni Vartiainen
Illustration and graphic design: Mainostoimisto Muikku • Poem: varssyja.wordpress.com

A TRICK OF THE SENSES

The eagle looks down from on high
and sees with its beady eye
tiny cars all filling up the street
and thinks: I'll pick one up; take it home as a treat.
The eagle swoops down with a swoosh of its tail
but the car was really as big as a whale!
The eagle's head is full of confusion –
some of these things are just an illusion.

- Jenni Vartiainen -



This exercise involves critical thinking and challenging the children to consider their sensory perceptions more closely.

Pour orange juice into three glasses. Use blue food colouring to dye one of the glasses of juice green, and use red food colouring to dye one of the glasses orange. Choose one of the children or adults to be a blind taster – this person must not see the colours of the juices. Allow everyone to taste each glass of juice. Ask the tasters to guess what juice is in each glass. How do the interpretations of the blind taster differ from the tasters who saw the colours? Think about why this is.

You will need a glass, a pen and paper. On the paper, draw a thick arrow pointing left. Fill the glass with water and place the piece of paper behind it about one palm's width away. Look at the arrow through the glass of water. What happens to the arrow?

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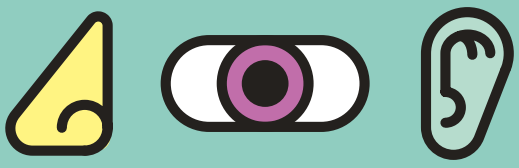
HOW FAST DO PLANTS GROW?

On a hazy night in spring,
as Mr Gnome is sleeping soundly.
Deep down in the soil a plant
is pushing up through the ground.

In the dewy drizzle of morning
the little plant grumbles and frowns:
"Will I live without colour?
Will I die without flowers?"

Mr Gnome bids bad spirits farewell,
then casts his magic spell:
"On this little plant
shall be a flower bud so fair.
I'll name you the coltsfoot
and I'll put yellow in your hair."

- Terhi Komulainen -



Let's find out how plants grow!

This exercise involves presenting the results of investigations graphically.

Sow some seeds on a flat surface, using a plant such as peas or barley. When the peas sprout, measure the lengths of the shoots systematically every day for one or two weeks by placing a drinking straw next to the shoot and cutting it to the same length as the shoot. Attach the straws to a sturdy piece of cardboard using Blu Tack. Arrange them vertically and in chronological order. The straws will make a graph that shows the speed at which the shoot grows.

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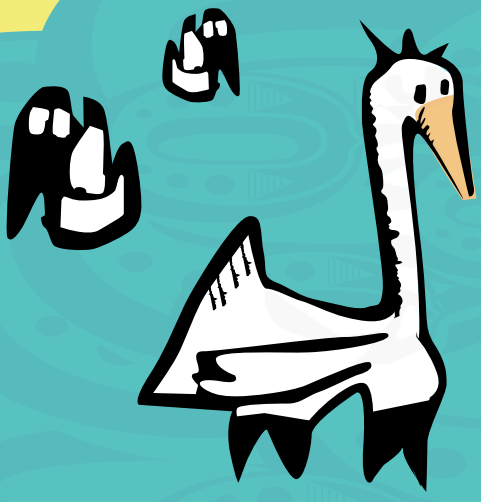
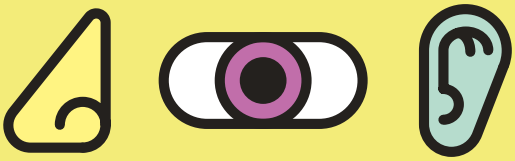
THE BIRD DANCE

The rooster stirs the porridge,
the hen warms up the milk,
the crow sweeps the rubbish off the floor,
the swallow washes up the spoons,
the wagtail salts the butter.
You flew to call on the eagles,
through eight towns and cities,
and over nine seas.





Let's learn about birdsong!

This exercise involves body modelling. The dance models the songs of different birds.

Observe pictures of the birds in the rhyme. Use a source such as NatureGate (http://www.luontoportti.com/suomi/en/) to search for the sound of each bird's song. Discuss and suggest what type of dance would suit each bird based on its song and the picture.

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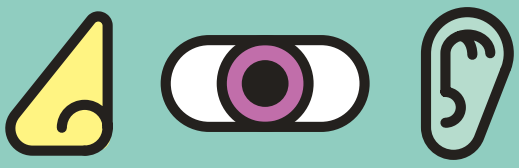
THE ROCKET

A group of scientists sent
a rocket into space.
Up, up to the stars
it disappeared away so far.
They'd worked hard to invent
a new transmission base.
Computers are supplied
maps of the night sky.



Let's make a rocket!

This exercise involves research and communication.

Play a science game. The children are scientists whose mission is to launch a rocket to study space. Build a rocket from an empty lemonade bottle. The children can play different roles: some can be responsible for decorating the rocket, others can launch it, while some can assess whether the launch was successful in accordance with agreed criteria. The rocket fuel is bicarbonate of soda and vinegar. When the rocket has been decorated, legs are fashioned from skewers so that the mouth of the bottle is facing downwards. Vinegar is placed in the bottle first. The bicarbonate of soda is then wrapped up in toilet paper and inserted into the bottle. The bottle is then corked (with a real cork, not a screw cap). The rocket is placed outside on sand, and everyone steps back to wait for the launch. The bicarbonate of soda and vinegar will react to form a gas. When the pressure of the gas is high enough, the cork will shoot out and the pressure will launch the rocket into the air.

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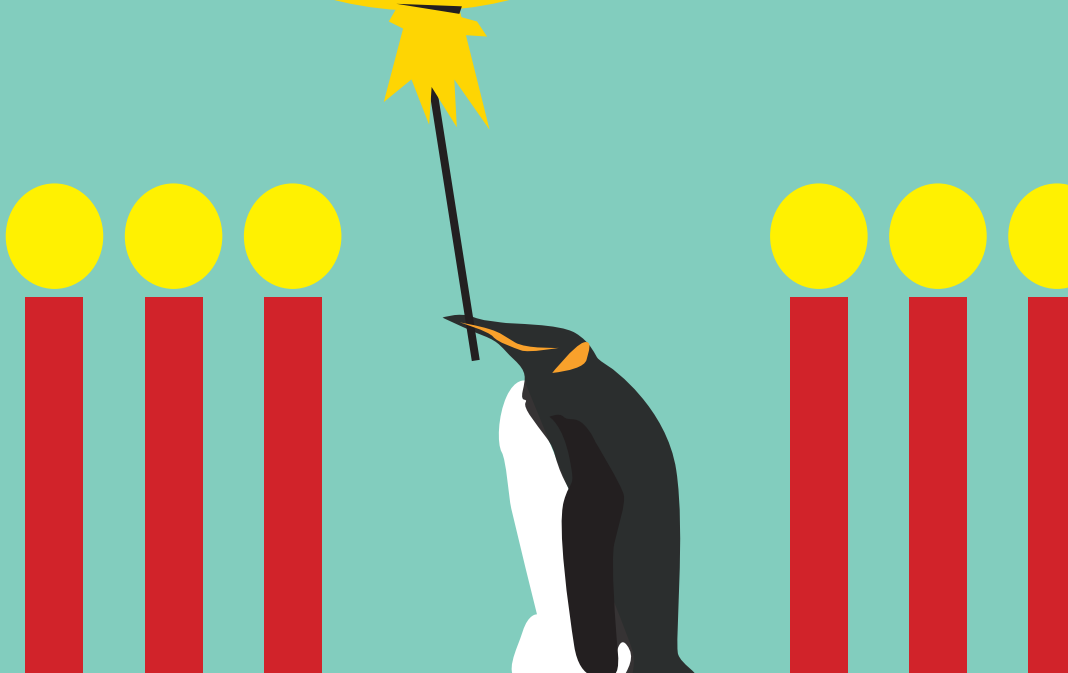
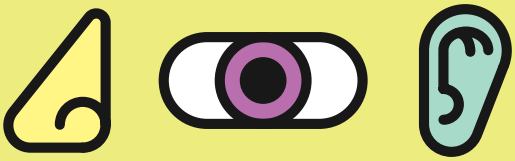
PENGUIN'S BALLOON PUZZLE

Balloons begin to inflate
Kids ready to celebrate
Six candles twinkling bright
Guests singing with delight
But why does the penguin look so bleak?
She can't blow balloons up with her beak –
it's too sharp or the balloons too weak
One of the children knows what to do
I'll blow the balloons up for you!

- Jenni Vartiainen -





This task involves problem-solving and working in a group. The group produces information itself and applies it to find a solution.

A balloon inflater can be made from an empty lemonade bottle, vinegar, bicarbonate of soda and an empty balloon. A funnel will also be useful.

First observe the reaction between vinegar and bicarbonate of soda. Measure out a spoonful of bicarbonate of soda onto a plate. Pour a spoonful of vinegar over the bicarbonate of soda. What do you notice?

Next, observe the reaction between vinegar and bicarbonate of soda inside a resealable bag. Measure out two teaspoons of bicarbonate of soda into a bag with a capacity of half a litre. Measure out 20 ml of vinegar and pour it into the bag. Close the bag quickly. What do you notice now?

We can see that when vinegar and bicarbonate of soda react, a gas is produced. How could we trap this gas inside a balloon? Allow the children to brainstorm and experiment.

Tip: the easiest way to get the balloon to inflate is to measure out 100 ml of vinegar into the bottle and five teaspoons of bicarbonate of soda into the empty balloon (use the funnel to get the bicarbonate of soda into the balloon). Stretch the mouth of the balloon over the neck of the bottle. Lift the balloon up, causing the bicarbonate of soda to tip into the bottle. Hold the balloon onto the neck of the bottle.

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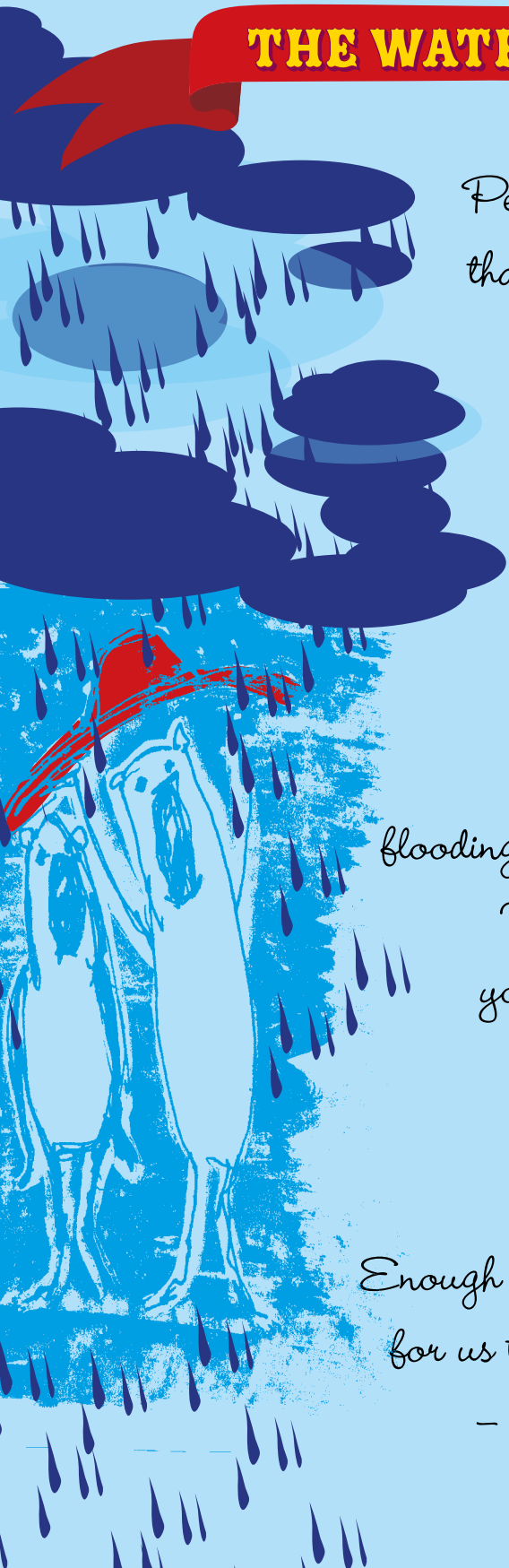
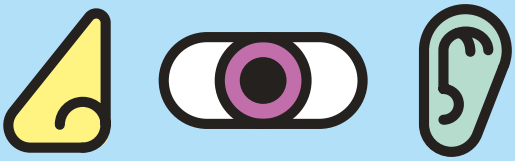
THE WATER CYCLE



People are complaining
that it's always raining.
The seas,
the lakes,
the ponds,
the rivers,
the streams,
the ditches,
the droplets,
flooding everywhere, water, water.
Wherever you step,
your feet will get wet.
Father cloud,
mother cloud,
cloud babies!
Enough with the rain. Now it's time
for us to enjoy a bit of sunshine.

– Ester Ahokainen –



Let's find out where rain comes from!

This exercise involves modelling the origin of rain by creating a miniature model of the water cycle.

Build a miniature natural environment inside a washbasin: place sand at the bottom and the soil for the ground. You can put a large stone in the basin to represent rocks and place some twigs to represent trees. Make a body of water by embedding a flat-bottomed basin or bowl in the sand. Put warm water into the bowl. Cover the washbasin with cling film. Above your body of water, place a few ice cubes on the cling film to model the cold air in the atmosphere. Observe what happens to the water in your miniature model.

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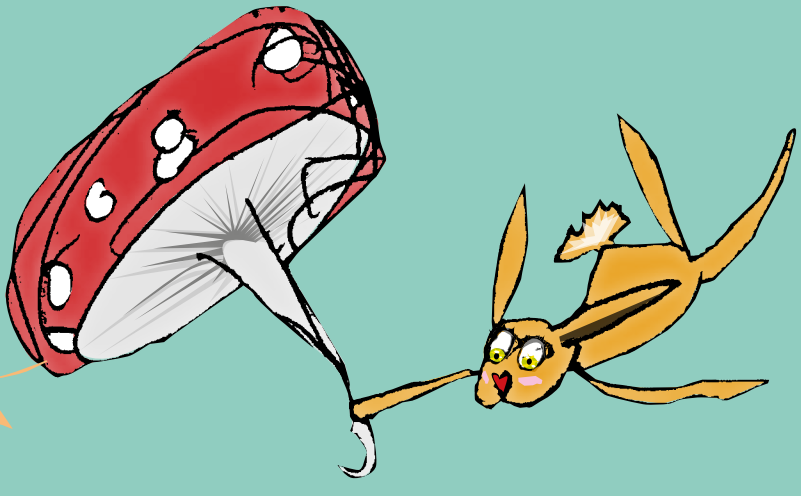
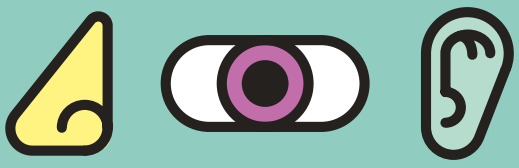
AUTUMN LEAVES

Willow leaves in red,
birch leaves in yellow.
Autumn's setting off
a jolly show of colour.
Wild orange on the maple tree!

- Jenni Vartiainen -





Let's explore the autumn colours!

This exercise involves making observations and using your own body to create art.

Go outside and collect lots of different autumn leaves. Spread the leaves out on a large sheet and look at them all: How do they glide through the air when they fall from up high? Can you burrow into them? Choose your favourite leaf and find out how to mix red, yellow and blue to create the shades of the autumn leaves. Draw the outline of a tree trunk on a piece of paper. Put your whole hand into the colours you have mixed and use hand prints to make fantastic-looking autumn leaves on your tree.

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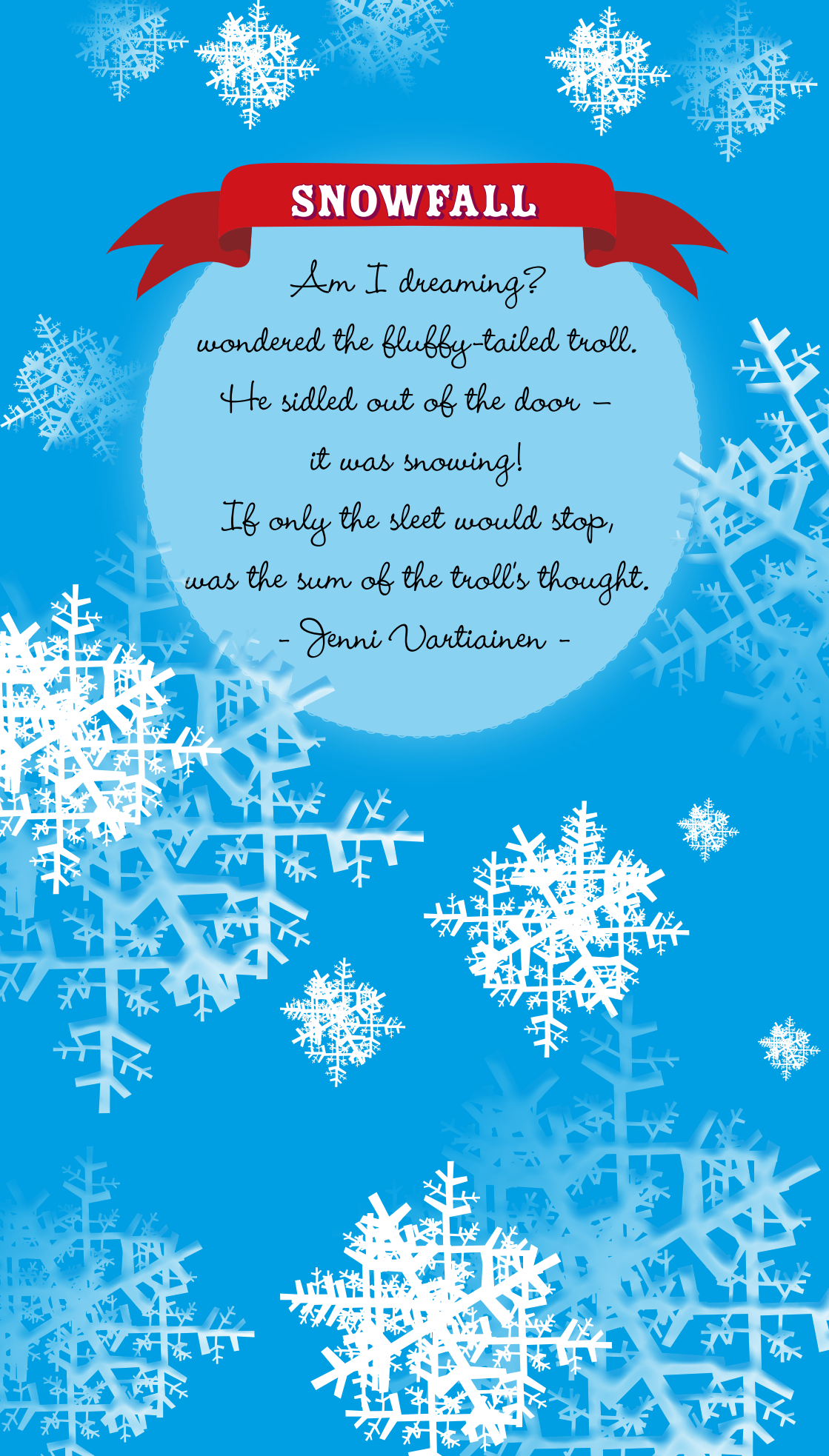
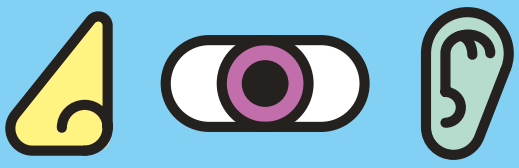

SNOWFALL
Am I dreaming?
wondered the fluffy-tailed troll.
He sidled out of the door –
it was snowing!
If only the sleet would stop,
was the sum of the troll's thought.
- Jenni Vartiainen -



Let's examine snowflakes!

This exercise involves observation using tools to make observation easier. It also teaches the skill of recording observations.

Go out when it is snowing. Catch some snowflakes on black cardboard. Under a shelter, use a magnifying glass to examine them and take a photograph of the snowflakes through the magnifying glass with a digital camera or mobile device. Put on an exhibition of snowflake photographs on the wall!

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