

Dreamachine Resources for all ages

# Families & Home Activity Pack

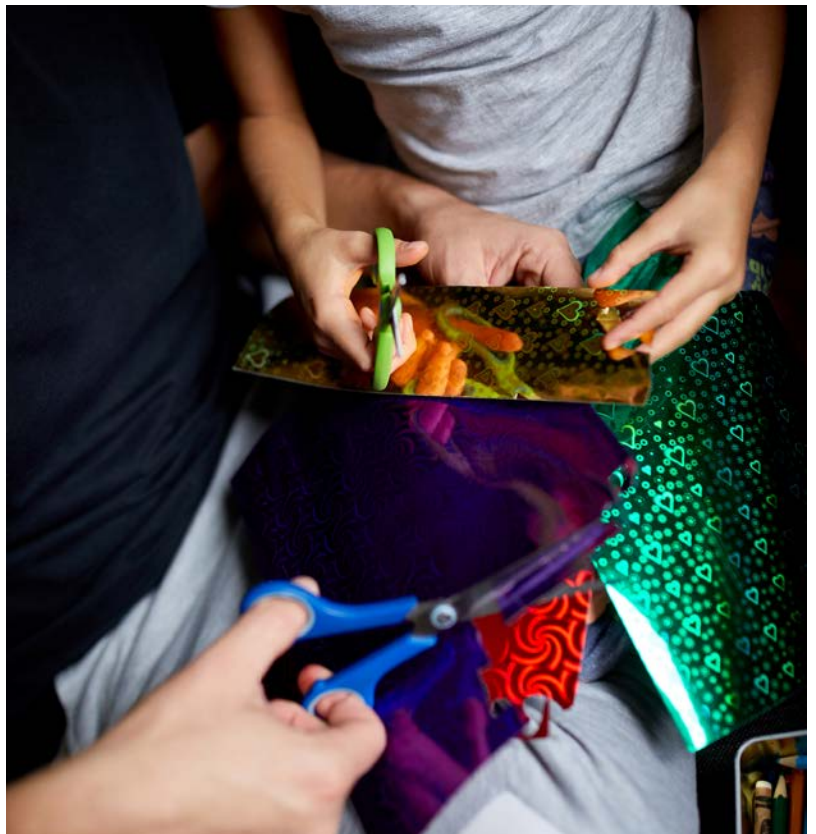
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# Introduction

A selection of activities for families to enjoy at home, taken from the Dreamachine Schools Resources. Explore perception and illusion, the senses, your imagination and how everyone is unique but also connected with these creative and fun ideas, suitable for children of all ages.

You can see the lesson plans in full, and find extra ideas and tips in the Home and Blended Learning sections of each resource, at [schools.dreamachine.world/resources](https://schools.dreamachine.world/resources)

Dreamachine Schools is a major programme in partnership with the British Science Association, UNICEF UK, and We The Curious, commissioned as part of UNBOXED: Creativity in the UK – a once-in-a-lifetime celebration of creativity taking place across England, Northern Ireland, Scotland, Wales and online from March to October 2022. Find out more at: [www.unboxed2022.uk](https://www.unboxed2022.uk)



# Perception and Illusion: Seeing Faces

Go on a hunt to find faces in everyday objects!

## Activity: Does Your Brain Spot Faces? (10 – 15 minutes)

Ask pupils to point to where their brain is. Ask them for ideas of what the brain does. Take a few answers and address misconceptions quickly. Tell them that different parts of the brain do different things, so one part of the brain helps move your body, another part of the brain helps you see etc. There are lots of things the brain does!

Ask the children to tell you what facial features the brain will need to see a face. Depending on the age, you could sing a song or point to your different facial features together.

Introduce the idea that there is a part of the brain called the 'fusiform face area' (FFA) that is dedicated to detecting faces and very sensitive to features of faces, and that sometimes your brain makes you experience faces, even when none are there.

Model to the class, something you spot in the classroom or in the clouds out of the window that looks like a face or has a smile, or eyes, or a facial feature.

Say that they are going to go on a hunt to see if they can find faces in objects around the room (or a longer activity around the school or outdoors). Can they predict how many they think they will find? Which facial features do they think they will spot the most?

You could take cameras with you to capture photos as children point them out.

Coming back together as a class, write the word '**pareidolia**' on the board and tell pupils that this is a word for people experiencing faces in objects that are not faces.

Ask if they have spotted faces in other places before the hunt e.g. in the coffee machine at home.

Share a slide of inanimate objects that look as though they have faces (see the resources list). Include very pared back faces and ones with lots of features. Ask pupils to put up their hand if they can see one face, then two faces etc. up to the total of images on the board. Choose pupils to describe some of the faces.

*'Where are the eyes? Nose? Mouth?'*

### Resources

- Images of inanimate objects that appear to have faces. Example: [www.theguardian.com/australia-news/2021/jul/07/so-happy-to-see-you-our-brains-respond-emotionally-to-faces-we-find-in-inanimate-objects-study-reveals](http://www.theguardian.com/australia-news/2021/jul/07/so-happy-to-see-you-our-brains-respond-emotionally-to-faces-we-find-in-inanimate-objects-study-reveals)
- Cameras (optional)

# Perception and Illusion: Do You Believe What You See?

Make your own optical illusion!

## Activity: Kanizsa Triangles (10 minutes)

Give pupils red paper and scissors to make Kanizsa triangles:

- Ask them to make 3 circles using a stencil, cut out the circles and then cut a 'cake slice' piece from each circle.
- Ask them to place the circles next to each on a piece of paper with the slices turned towards one another.
- Now ask the class to put their hands up if they seem to see an invisible triangle.

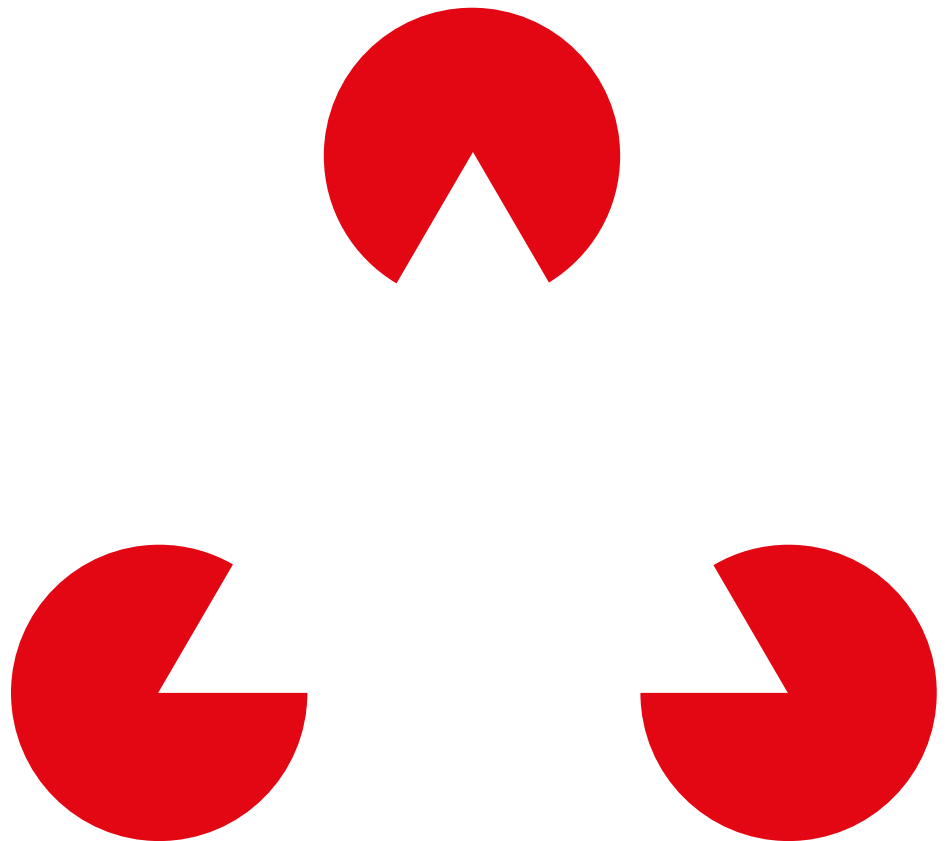
Display a slide to the class with an example of a Kanizsa triangle.

If they haven't seen their triangle yet, check that they experience it on the board and ask them to move their shapes around until a triangle 'appears'.

Once everyone has successfully experienced the Kanizsa triangles, ask them to put their cut-out circles to one side – they will need them later.

### Resources

- Kanizsa triangle image: [www.illusionsindex.org/i/kanizsa-triangle](http://www.illusionsindex.org/i/kanizsa-triangle)
- Coloured paper and pens / pencils
- Scissors
- Circle stencil, compass, or something round to draw around



Kanizsa Triangle

# Perception and Illusion: Playing With Perspective

Snap some illusion photographs using forced perspective!

## Activity: How Can We Change Perspective? (40 minutes)

Ideally, you could move into the hall or playground for this activity, where pupils will have a long distance to get the best results for their pictures.

Show examples of forced perspective images.

Choose pupils to tell you what appears to be happening in each picture. Pupils discuss this question with the person next to them for 2 minutes:

*'How do you think the pictures are made?'*

Share ideas as a whole group. Elicit the idea that one thing must be close to the camera and another further away, and yet because they seem to be touching, we see it as one connected scene.

Explain that this is called 'forced perspective'.

Invite the class to use their own imaginations and work together to experiment with forced perspective and take photographs for themselves.

In small groups, each with a camera, they decide who will be the photographer. Give them 5 minutes to try and recreate one of the pictures they have just seen.

Monitor closely using these prompts:

*'Could you try another angle?' (Low to the ground etc.)*

*'Are they close enough together in the picture?'*

*'Are there any other angles you can find that play with our perspective?'*

*'Can you make it look like someone is climbing or falling?'* (This would involve the subject lying on the ground).

Once they have successfully recreated one of the example pictures, show them some example papercut forced perspectives as further inspiration. Using card and scissors, give them 15 minutes to plan their own scene.

*'Don't plan too much away from the camera. Try out rough ideas in front of the camera as you go!'*

Use prompt questions to spark ideas:

*'What shapes can you see in the space?'*

*'Who is in your scene? People, animals, aliens?'*

*'Could you draw them or make masks with card and pens?'*

*'Where does it take place? School, in space, underwater? Could you make a planet or waves to hold close to the camera?'*

*'Is there anything that these forced perspective pictures have in common?'*

### Resources

- Forced perspective images using hands and bodies – examples:

[www.expertphotography.com/forced-perspective-photography](http://www.expertphotography.com/forced-perspective-photography)

[www.digital-photography-school.com/forced-perspective](http://www.digital-photography-school.com/forced-perspective)

- Papercut forced perspective images (a web search will bring up multiple examples)
- Camera
- Selection of card and coloured paper
- Pens and pencils
- Rulers, scissors and glue

# Power of the Brain: Investigating Our Senses

Find out how colour can affect taste in this drink investigation!

## Activity: Playing with Sight and Taste (30 minutes)

Throughout our lives, we have learned associations between certain colours and flavours. If we see a certain colour, we will expect a certain flavour – and this expectation can change our experiences. In this experiment, the class will find out how powerful these colour-based expectations can be.

- *Do you think a green tomato tastes the same as a red tomato?*
- *What about a purple carrot?*
- *How would you feel about eating blue mashed potato?*
- *What senses are we using when we eat or drink something?*
- *What factors might change the way food tastes to us?*

*Hands up if you think the colour of a food could change the way that it tastes!*

*Hands up if you don't think the taste changes at all!*

*Hands up if you think strawberry flavour is always the colour red?*

Smell is vital to flavour. Even before we eat something tiny molecules float into our nose where they are detected by smell receptors. When we chew food, even more are released, and travel from our mouth up the back of our nose.

The smell receptors send signals to the brain which are combined with the taste signals to produce a food's flavour. This is why food tastes of very little when we have a blocked nose.

*Let's experiment using our sight and taste!*

Pupils work in groups of four with the real-world task of setting up a drinks stall to raise money at the school fair. Together they need to work out which type of lemonade will sell better – pink or yellow – by seeing how much food colouring they should add to their drinks.

*You are going to come up with an idea that you can test with an experiment – this is called a hypothesis. Do you think people will prefer yellow or pink drinks? Will they like only slightly coloured ones, or the darkest option? We need to figure out a method to answer these questions.*

Ask pupils to consider different methods and how they could make it a fair test. A suggested method is laid out below:

- Set out 8 cups and label them 1 – 8. Pour a quarter of a cup of lemonade into each.
- Add varying amounts of food coloring and mix well.

(See table below for suggested amounts – though you may need to adjust the amounts depending on the strength of your food colouring. The colours should be noticeably different.)

### Resources

- 1 bottle of clear, colourless lemonade
- Red and yellow food colouring – 1 bottle of each
- 8 Paper cups
- Drinking straws
- Measuring jug
- Marker pen
- Spoons or food-safe stirrers

*Continued over the page →*

# Power of the Brain: Investigating Our Senses

c. Taste each drink and rate how much you enjoyed it in the table.

(1 for dislike through to 10 for really like.)

Cup number	Colour	Amount / drops	Liking (1-10)
1	Yellow	1	
2	Yellow	4	
3	Yellow	8	
4	Yellow	12	
5	Red	1	
6	Red	4	
7	Red	8	
8	Red	12	

# The World Around Us: Imagine A World

Make a model of what you think the world could be like!

## Activity: Imagine a World (40 minutes)

Children will design an imaginary world which will include 3 things they most value about education and 3 things they most value about the environment.

- *What kinds of things will you include for your environment and the natural world that you care about most?*
- *What about your local area? e.g. more plants or green spaces, eco buildings etc.*
- *What about how you would see the spaces of education?*
- *What you would want to learn there and how would they develop your talents and abilities?*

In small groups, children have 5 minutes to decide and agree on the things most important to include in their imaginary world.

They take 25 minutes to create a plan of their local area in this world. The plan could be 2D as artistic impressions or maps, it might incorporate different styles, depending on the skills of the group. (With more time, this activity could be a 3D junk modelling task).

Encourage groups to add as much detail as possible and to prepare for a presentation 'tour' of their world.

Once the worlds are complete, a volunteer stays to represent their world as 'tour-guide', while the rest of the group rotates to visit other group worlds. Tour guides explain their world, what they value the most, and the decisions they made to visiting groups.

### Resources

- Drawing, painting, and other art making materials
- OPTIONAL: Glue / sticky tape and recycled 3D junk modelling materials – as much as you can gather – cereal boxes, washed out milk cartons and yoghurt pots, cardboard tubes, and packaging



# We Are All Connected: Together We Can Make a Difference

Write a poem about how your voice can make a difference!

## Activity: The Mark We Leave On the World (40 minutes)

Explain to the class that the United Nations Convention on the Rights of the Child, or UNCRC, has 54 articles that cover all aspects of a child's life and set out the civil, political, economic, social, and cultural rights that all children everywhere are entitled to. It explains how adults and governments must work together to make sure all children can enjoy all their rights. Every child has rights, whatever their ethnicity, gender, religion, language, abilities, or any other status.

Every child has the right to share thoughts freely, and the right for their voices to be heard.

*'Fingerprints are unique to each person, and everybody has them. In the same way our creative voice is also unique but shared by everybody on the planet. You are going to make a piece of art about the power of your voice along with your unique fingerprint as a metaphor for your mark on the world.'*

Lead a brief class discussion thinking about activists who speak out on causes e.g. Malala Yousafzai on education, Greta Thunberg on the environment, Marcus Rashford on school meals etc.

*'What causes are important to you that you might want to speak out about?'*

Working individually, pupils create an eight-line list poem of the ways we share our voice with the world.

They start each sentence with, *'My voice is...'*

*'Let your imagination fly to create your own lines! A good way in is to compare your voice to categories like nature, music, sport, your hobbies and beliefs.'*

Example prompts:

*My voice is bright like a star*

*My voice is in my tap dancing shoes*

*My voice is the cricket ball hitting the bat*

*My voice is the swoosh as I swim*

*My voice can make someone feel loved*

*My voice can help someone understand*

*My voice can stand up for what I believe in*

*My voice can make someone feel important*

*My voice runs free like a river*

*My voice can make change happen*

### Resources

- Paper and pens / pencils
- An A4 printed out finger-print, either the child's own (made using an ink pad) photographed and enlarged, or one printed from online

# We Are All Connected: Together We Can Make a Difference

Once complete, pupils keep their poem on one side as they will need this to add to their fingerprint artwork.

Each child has a black and white A4 fingerprint template – either based on someone else's fingerprint in the class or a generic fingerprint pattern (arch, loop, whorl).

They place a plain piece of paper over the template and carefully trace the lines with pencil, so each pupil has an A4 pencil drawing of the fingerprint.

Pupils now identify lines of their poetry they think are the most powerful about their voice in order to add to their fingerprint.

Very carefully, they write these lines of poetry into the template of the fingerprint carefully following the lines on the page, so the words follow the design of the fingerprint.

They write the words into the design and pick out a few impactful words to write in capital or bold letters.

*'Why don't you think about using different colours for different sentences? Think of the associations you have with different colours when you choose them. You could write lightly in pencil first and then write the final words in pen. Once you have finished writing – all the lines in the template pattern should be filled with words, even if some sentences are repeated.'*

Once every pupil has finished, their fingerprints can be shared together as a collaborative display piece.

# Me and My Wellbeing: Making a Breathing Space

Improve your wellbeing with this mindful moment!

## Resources

- Paper and pens/pencils

## Activity: Drawing Our Breath (20 minutes)

Each pupil is given a piece of paper and a pencil. They sit in front of the paper with their eyes closed and take slow breaths in and out. Now relaxing into their breathing, and still with their eyes closed they start to take their pencil for a walk on the page as they breathe. There is no right or wrong way to do this, they can just relax into the feeling of breathing and moving their pencil.

They open their eyes and compare drawings – often these are a series of loops or jagged lines. They have just made the invisible, visible!

Pupils continue visualising their breath in a further drawing activity. This time you will take them into a guided draw to further visualise their breath. You might find it helpful to play background music as they draw.

*'If your breath flows in and out of you as a source of energy and life, then let's think more about your breath as water. You are going to draw your breath as a river – I'll guide you to begin with and you can relax into your breathing and let your imagination fly.'*

- *Think about where your river begins on your page.*
- *Does your breath start as a small stream and grow into a big river or the other way round?*
- *Are there obstacles in your river perhaps?*
- *Who is on the bank of your river?*
- *Are there boat wrecks or treasure chests to be found in your river – what gifts will we discover?*
- *Perhaps there's a quiet spot or lagoon that no one knows about – a special place.*

*'Take your time and see your breath flow across the page as a river of life.'*

Ask volunteers to share their work with the class and describe the river in their picture and why they made their choices.

# What Does it Mean to be Me?: My Inner Universe

Celebrate your individuality by making a collage of everything that makes you, you!

## Activity 1: Pieces of Me (20 minutes)

Prompt a class discussion;

- *How much can we know about a person just by looking at them?*
- *What are all the things about a person that we can't see?*
- *What does this make you think about for yourself?*

Pupils choose a part of their body to draw around – e.g. their hand, foot, part of their arm. Working into and around the outline shape, they write words to describe their inner selves. Encourage them to think broadly about their mood, attitude, and feelings, rather than physical things and to experiment with how the text appears on the page – at different scales and fonts or in different directions.

- *What emotions do you associate with yourself?*
- *What colour do you think describes your mood?*
- *What values or attributes do you see in yourself?*

## Activity 2: Layers of Me (20 minutes)

Using this image and text of themselves as a starting point, pupils now add multiple layers, creating transparent and semi-transparent overlapping pages or flaps to their work using a variety of coloured, thin paper. Each one will be the focus of one different insight about themselves and a different element to their personality and what matters to them. Encourage them to aim for 5 – 6-page layers or flaps.

Pupils could use symbols, drawings, or text to describe each aspect of their personality and each page could take on a completely different style. They should consider the order of the layers and how the visual fits with the themes they are compiling. Once they have decided, they can assemble their pages by stapling, sewing or with string and hole-punch.

*'People can connect with others because of their different layers and celebrate their own uniqueness which helps them feel confident. Celebrating people's individuality is important so everyone feels special, seen, heard, and included. By exploring their layers, people will learn about their individual traits, what they like or dislike and how their inner universe helps them to be who they are and connect with the world and themselves.'*

### Resources

- A3 paper
- A selection of different types of paper – could include tracing paper, thin papers, clear and coloured acetate – you will need about 5 sheets
- Pens, pencils and coloured pencils
- Method to attach pages together – stapler, hole punches, string or needle and thread

# Life's Big Questions: Take part at home!

## Fun interactive science challenges with Martin Dougan (CBBC Newsround)

*Dreamachine* invites children ages 7+ to take part in **Life's Big Questions** - an interactive nationwide children's survey into the senses, with mind-boggling illusions and exciting science investigations to inspire intrigue and reveal the amazing potential of the human brain.

Explore five big questions through a series of activities from a tablet or desktop. Challenge your child or take part together to explore big **scientific and philosophical** questions such as: *Are colours only in my mind? Is everything I hear real? How do I know time is passing?* Discover the different ways in which we experience the world and why the senses aren't as simple as they seem.

Each activity includes a short (5-7 min) video introduction hosted by the brilliant **Martin Dougan** (CBBC Newsround), along with globally renowned scientists and philosophers as guests, followed by a series of fun challenges to see how well you know your senses and how your responses to the big questions compare to others across the UK!

[Take part at lbq.dreamachine.world](http://lbq.dreamachine.world)

Life's Big  
Questions

