



Did you know apples are originally from Kazakhstan not Kent? Yet they've made themselves right at home here, thanks to a little help from us humans. Inspired by the Kent Downs National Landscape and artist Anya Gallaccio, we explored why apples thrive in Kent, how they got here and their future.

Turns out, the humble apple is the ultimate teacher. In fact, you can teach just about every subject under the sun using apples—science, technology, engineering, art, and maths (STEAM) all in one day! You can even toss in a bit of history, geography, English, and RE if you're feeling ambitious. Nature and learning, perfectly paired.

This resource has been developed by teachers at Palm Bay Primary School, Ramsgate Arts Primary School, Upton Junior School and the Learning Team at Turner Contemporary. Showing you how the simple apple can be used to teach across the curriculum, with plenty of ideas about how you can run your own apple day.

Learning Supporters



The Lunaria Trust

Public Funding



Project Partners & In-Kind Supporters



APPLES IN BRITAIN

History of Apples

The rich history of apples shows their journey from ancient wild varieties in Central Asia to the diverse and widespread cultivation seen today, especially in regions like Kent.

Origins and Early History

- **Tian Shan Mountains:** Apples originated in the Tian Shan mountains on the Kazakhstan-China border near Alma Ata, meaning 'Father of Apples.'
- **Malus sieversii:** This apple species from Kazakhstan is the ancestor of all modern apples. Over millions of years, *Malus sieversii* developed diverse apple types, helped by animals that favored and spread the fruit. Trade routes meant they could reach different parts of the world.

Apples in Britain

- **Neolithic Period:** Evidence indicates that wild apples were present in Britain during the Neolithic period.
- **Roman Influence:** The arrival of the Romans brought sweeter and more palatable apple varieties to Britain.
- **King Alfred (885 AD):** Historical records mention apples in England during the reign of King Alfred.
- **Costard Apple (1292):** One of the earliest named apple varieties in the UK, the costard apple, dates back to 1292.

Apples in Kent

Kent has a long association with apples. The first commercial orchards were based here. The county maintains fifteen traditional orchards managed by local communities, preserving heritage varieties and traditional farming methods.

Kent is home to the **National Fruit Collections** at Brogdale Farm in Faversham. It is one of the largest fruit collections in the world, with over 2000 apple varieties grown there.

Anya Gallaccio

Anya Gallaccio is a British artist known for creating site-specific sculptures from organic matter such as apples, chocolate, flowers, trees, ice and even lit candles. Central to her practice is an interest in the natural transformation of materials over time – which could be through decay, melt or growth. By embracing the unpredictable behaviours of materials, her works are often ephemeral and last the duration of an exhibition. She redefines what sculpture can be today.

Anya's 2024 exhibition at Turner Contemporary rethinks the relationship between art and the environment by presenting a group of artworks that connect with Kent's natural heritage and landscape.

Have you ever wondered
what's inside an apple
and how it grows?

Plants

Use apples to study plant parts and their functions, investigate apple tree growth, pollination, and seed dispersal.

Objective

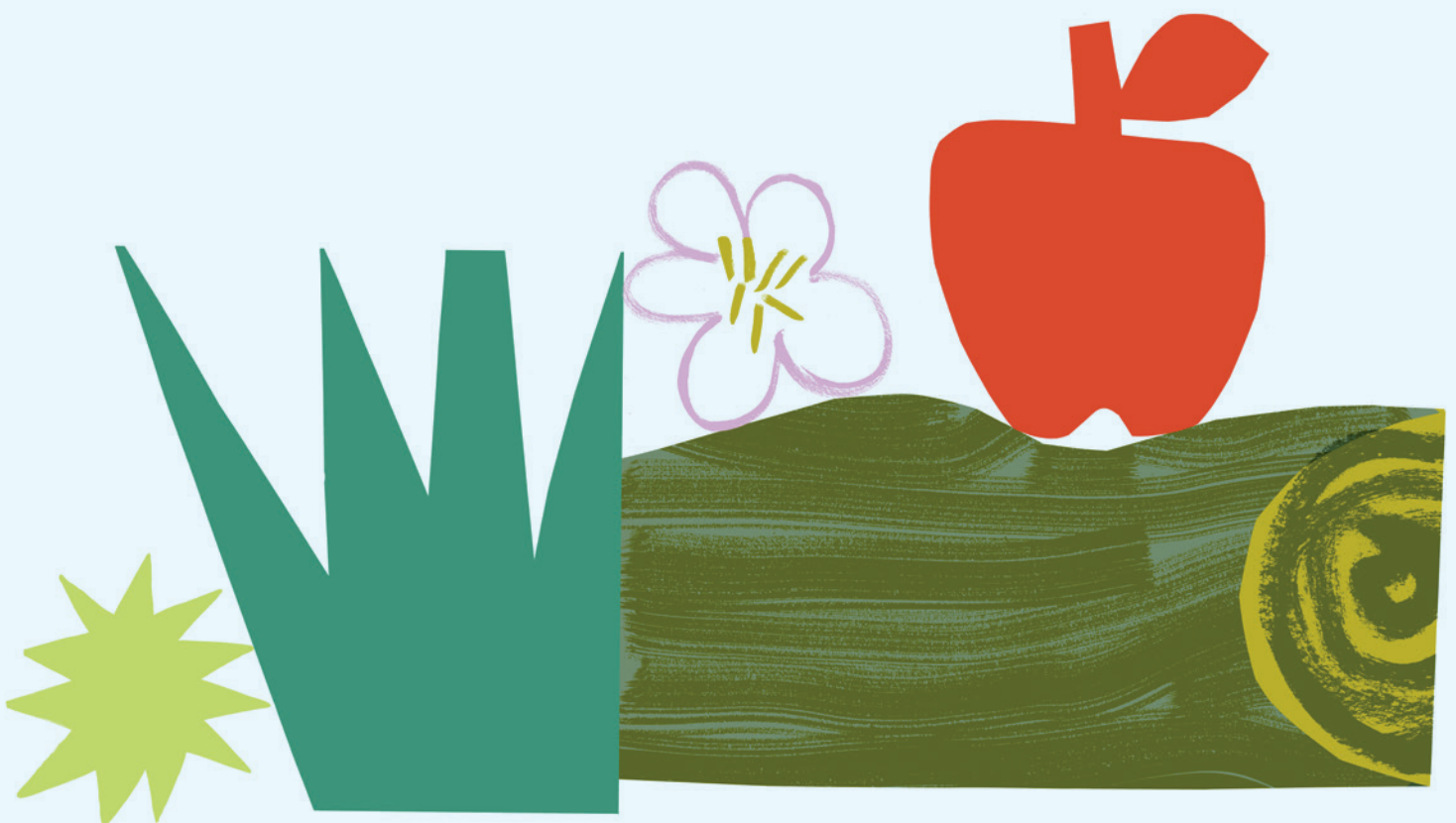
Identify and describe the basic parts of an apple.

Activities

- Introduce and observe a whole apple.
- Teacher cuts the apple in half. Students examine and identify the parts using magnifying glasses.
- Compare the physical properties of apple skins, seeds, and flesh.
- Students draw and label the apple parts, discussing their functions (skin, flesh, core, seeds, stem).

Extend

- Examine and identify apple cells under a microscope. (e.g. cell wall, cytoplasm, and nucleus).
- Study apple flowers and their development into fruits (bud, flower, pollination, fruit development).



How do you grow an apple tree?

Plants

Learn about the life cycle of an apple tree

Objective

Understand the life cycle of an apple tree from seed to fruit-bearing tree and what conditions it needs to thrive.

Activities

- Discuss the concept of a life cycle.
- Create a life cycle chart of an apple tree illustrating the different stages including pollination (seed, seedling, young tree, mature tree, flowering, and fruit-bearing).
- Take students on a guided nature walk around the school grounds or nearby park and look for key conditions for planting apple trees (sunlight, soil quality, water sources, shelter and other vegetation.)

Extend

- Introduce the concept of grafting to grow specific apple varieties. Grafting involves attaching a stem from the desired apple tree to a crab apple tree rootstock, which provides strength and support.
- Students research different apple varieties and their growth requirements. Conduct a taste test for the different varieties to find the most popular apple. Ask which two apple varieties they would they choose to blend together and why?
- Explore how different conditions affect plant growth by setting up small experiments using different types of soil, light exposure, or water levels with fast-growing seeds, and compare results over several weeks.
- Students make a stop motion animation of the life cycle of an apple on tablets.



Have you ever
wondered
what's inside an apple
and how it grows?

Seasonal Changes

Use the example of an apple tree to observe and describe the different seasons.

Objective

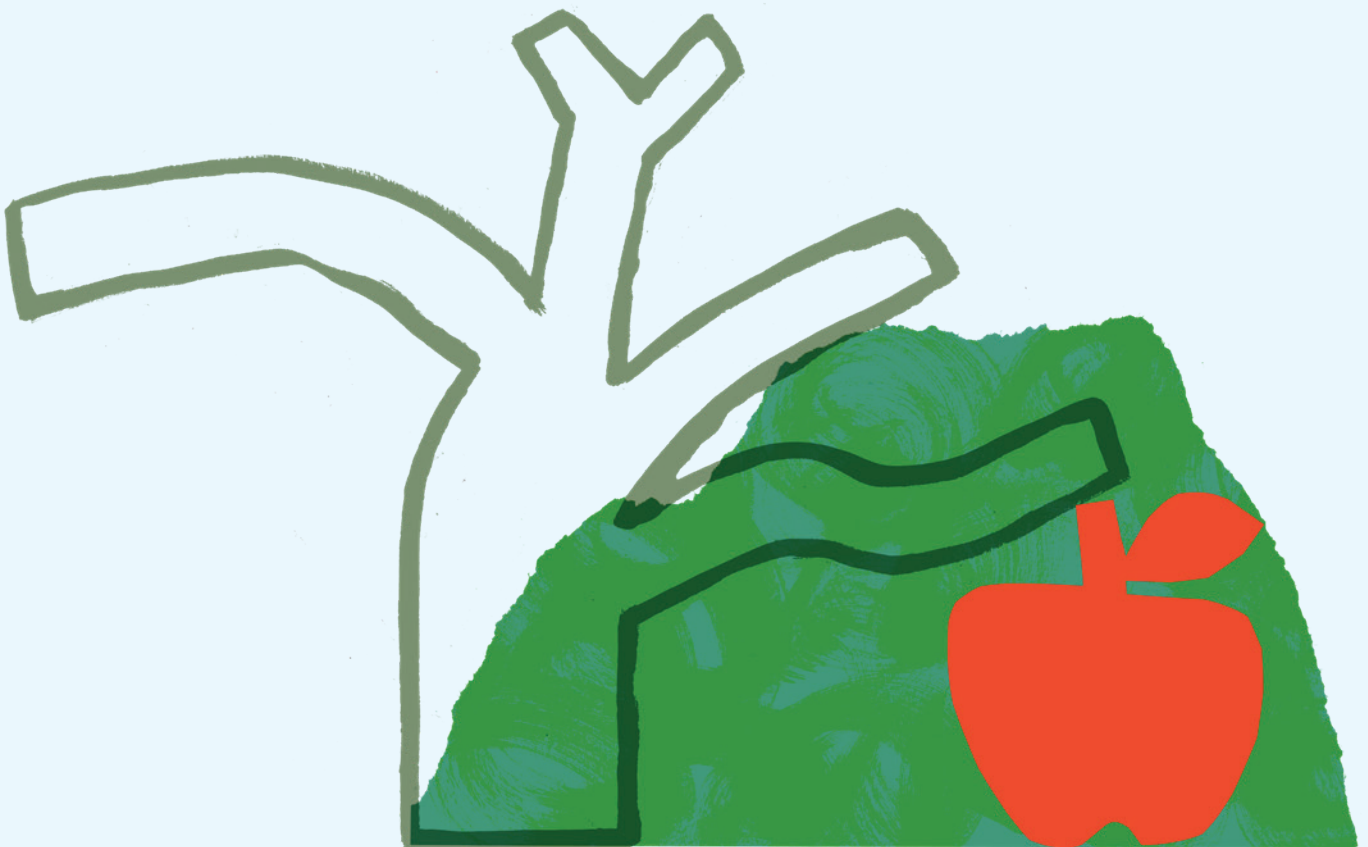
Analyse and describe how apple trees change through the seasons in relation to fruit production.

Activities

- Discuss the effects of seasons on trees.
- Split the students into 4 groups to research a different season and create posters detailing key features and changes to apple trees.

Extend

- Start a project to monitor a local apple tree's seasonal changes over time, recording observations monthly.
- Create four scenes of an apple tree in different seasons using mixed media (paint, paper, cotton balls, etc.)
- Why do apples fall to the floor? Create the link to leaves falling in autumn.



Why do the inside of apples change colour?

Everyday Materials

Explore the properties, uses and science behind apples.

Objective

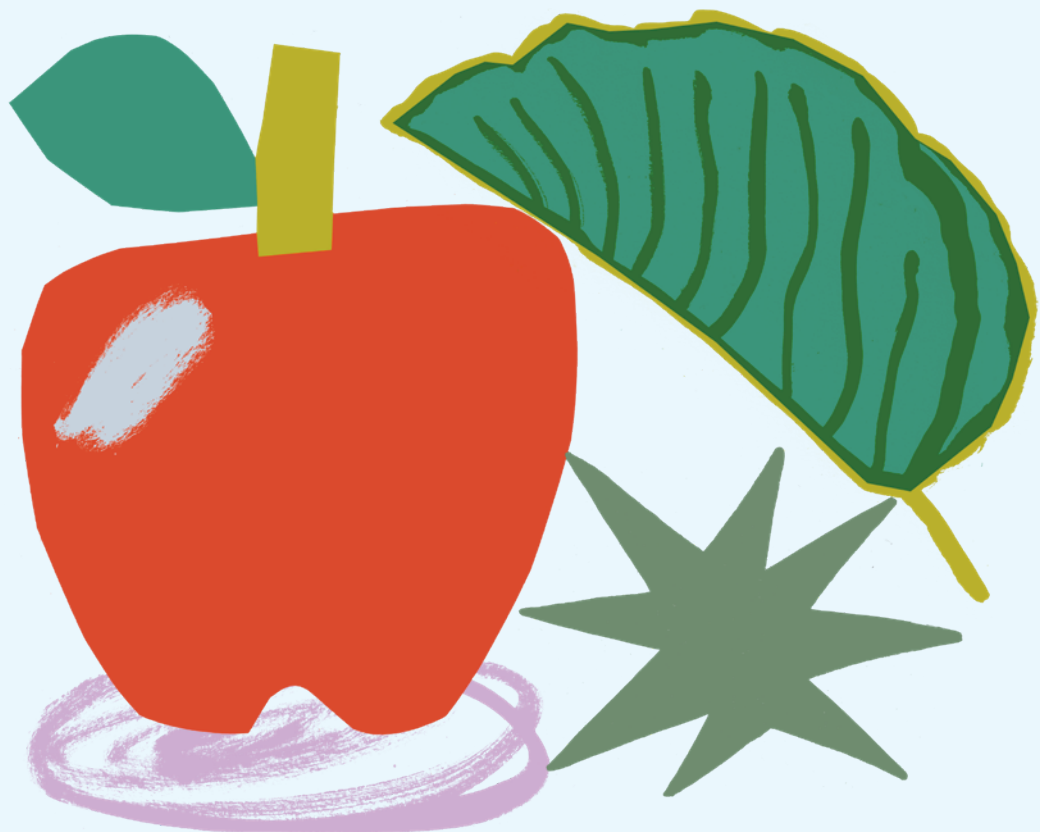
Investigate how apples change when exposed to air.

Activities

- Students cut apples to observe browning over time and learn about oxidation as a chemical reaction.
- Experiment with different conditions to see if this can be prevented. (e.g. put slices of apple in different pots containing lemon juice, water, salt, milk etc and observe its changes compared to untreated apple slices).

Extend

- Set up a food compost bin for the apples to investigate decomposition as a change in materials.



If you dropped a grand piano and an apple from the same height, which would land first?

Everyday Materials

Explore the concept of gravity through observation and experimentation using apples.

Objective

Investigate how apples change when exposed to air.

Activities

- Explain the force of gravity using the story of Isaac Newton and the apple.
- Drop apples from different heights, measure, and compare the time to hit the ground.
- Compare how different objects (e.g. apple, feather) fall, discussing gravity and air resistance.

Extend

- In teams have students design and make simple parachutes to slow their apple down. The slowest time wins.
- Link to the video of astronaut David Scott dropping a hammer and feather on the moon. This shows that all objects fall at the same rate regardless of mass, and the moon has no air to cause resistance with the feather.



TECHNOLOGY **Cooking with Apples**

Apple slices with dips

Apple salad with dressing

Where does your food come from?

Cooking and Nutrition

Use apples as the key ingredient for simple dishes and to learn about a healthy and varied diet.

If limited with equipment, split the group in two with half cooking whilst the other half design packaging for the food they are making and then switch.

Objective

Introduce healthy eating.

Activities

- Students cut apples into slices and prepare simple dips (like yogurt or peanut butter). Ask them to compare the apples in a blind taste test.
- Or design and make an apple salad.
- Discuss healthy eating habits.

Extend

- Introduce the concept of nets to make a mock up of their design or use software to digitally design packaging.
- Make a class apple based recipe book, poster or display board with artwork.



TECHNOLOGY Cooking with Apples

Apple muffins

Apple crumble

Apple coleslaw

Where does your
food come from?

Cooking and Nutrition

Use apples as the key ingredient for simple dishes and to learn about a healthy and varied diet.

If limited with equipment, split the group in two with half cooking whilst the other half design packaging for the food they are making and then switch.

Objective

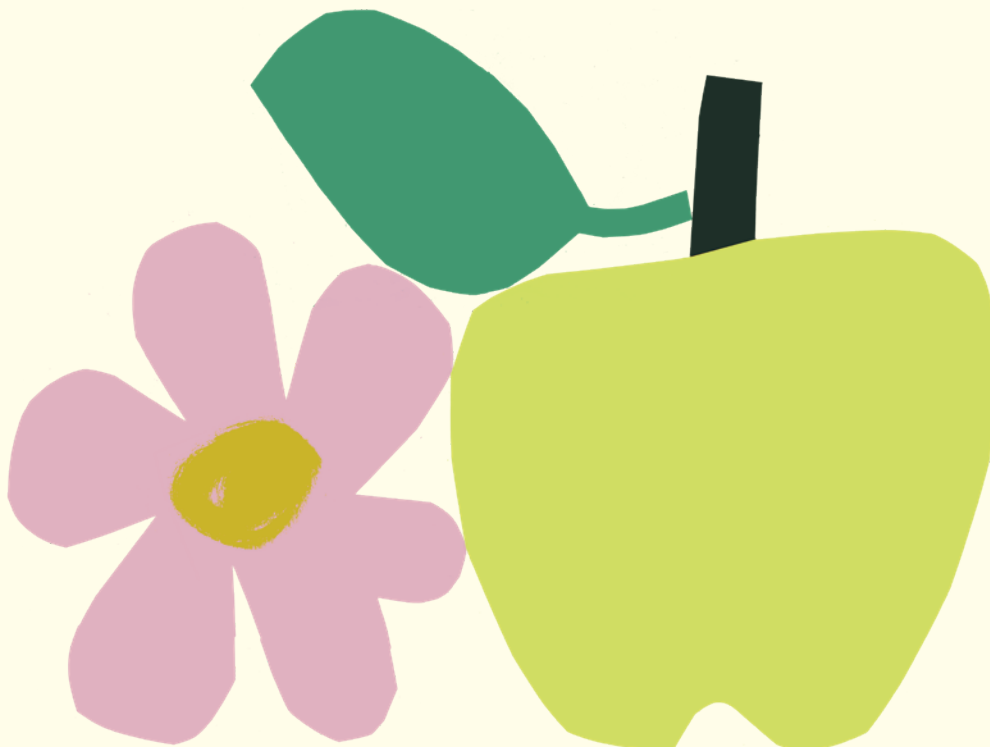
Learn basic baking skills.

Activities

- Students follow a simple recipe to make apple muffins, apple crumble or apple slaw (if no cooking equipment present).
- They will develop their cognitive skills; cutting, chopping, measuring, and mixing ingredients. Discuss the importance of following directions.

Extend

- Students research and test different apple preservation methods (e.g. drying, canning, making apple jam). They compare the methods based on taste, texture, and longevity.



TECHNOLOGY Apple Design Challenge

How do you grow
an apple tree?

Cooking and Nutrition

Use apples as the key ingredient for simple dishes and to learn about a healthy and varied diet.

Objective

Introduce basic design concepts.

Activities

- After creating their own food dishes, this activity looks at the next step in the production line.
- Students design their own apple packaging. They sketch a creative design that protects the apple, present goods and includes fun facts and nutritional information. Discuss materials that would be suitable for packaging.

Extend

- Introduce the concept of nets to make a mock up of their design or use software to digitally design packaging.
- Make a class apple based recipe book.
- Make a poster or display board with artwork.



ENGINEERING Automated Apple Picker Prototype

Approximately
1.8 billion apples
are picked each day
around the world.
How do we pick
so many apples?

Design

Design and test your own automated apple picker using simple materials

Objective

Understand robotics and automation in agriculture.

Activities

- Introduce automation in farming and discuss the basic components needed for picking apples: a gripping mechanism, a way to lift the apple, and a method to release it into a basket.
- Students design and test a simple prototype of an automated apple picker using materials like cardboard, string, cogs and small motors.



ENGINEERING Apple Boats

Design

Design and build sailing boats using apple pieces as the hull of the boat.

Why do apples float?

Objective

Understand upthrust and basic design.

Activities

- Students design and build a boat using apple pieces that can float and carry small weights (like pennies). Use twigs and leaves for sails. You could have boat races.
- Test the boats in water and see how many weights they can hold before sinking.



ENGINEERING Apple Tower Challenge

What's the
tallest tower
you can build?

Design

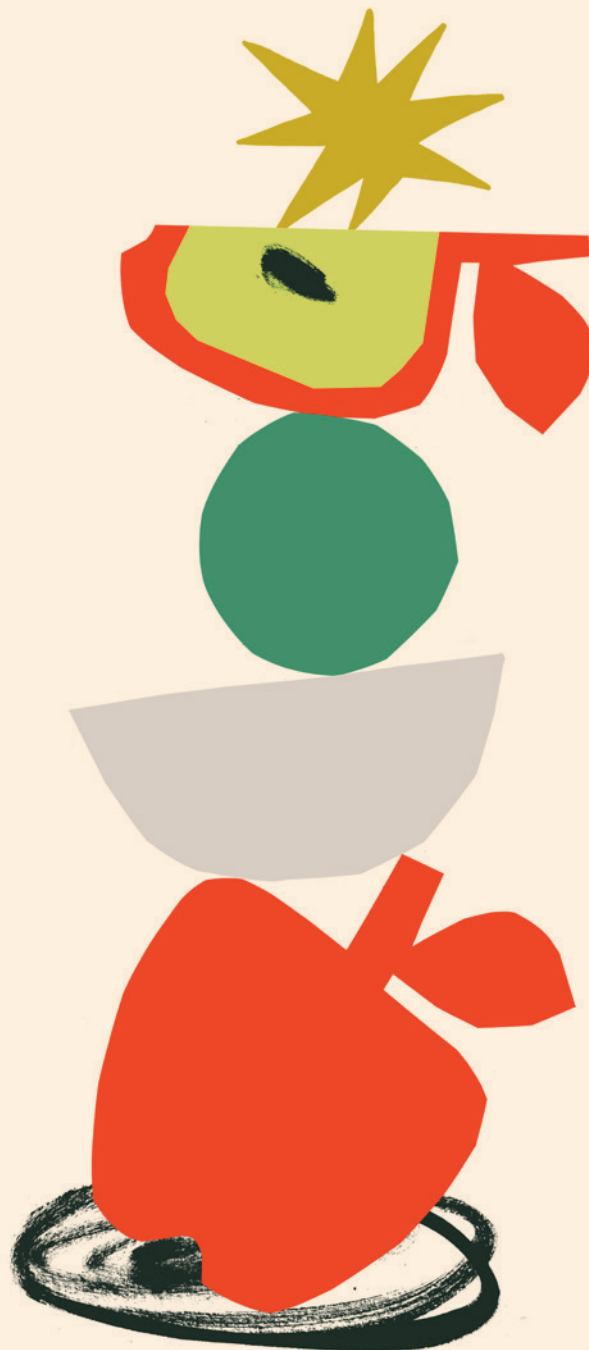
Design and build a tower using apple pieces and toothpicks.

Objective

Introduce basic principles of structure and stability

Activities

- Students design and build a tower using apple pieces and toothpicks.
- Gently shake the table. The tallest tower that remains standing wins.



ENGINEERING Apple Catapult

How far
can an apple fly?

Design

Design and build a small catapult to launch apple pieces.

Objective

Learn about levers and simple machines.

Activities

- Students design and build a small catapult to launch apple pieces using simple materials such as lollypop sticks, elastic bands and spoons.
- Test these in a large open space free of people and measure the distance travelled.
- Link this back to maths. Instruct the children to plot each landing and create a graph or chart showcasing the results.



What colours
can you create
from overlapping?

Techniques and Mediums

Study the simple apple to explore a range of methods and materials.

Objective

Explore printmaking using apple halves.

Activities

- Cut apples in half, dip in paint, and create apple prints on paper.
- Experiment with different colours, overlapping prints and symmetry.



Can you
think of other food
based logos?

Techniques and Mediums

Introduce students to the shape, colour and texture of apples.

Objective

Introduce students to the shape, colour, and texture of apples.

Activities

- Students make observational drawing of apples using pencils and shading.

Extend

- Students learn about how the Apple logo was designed (from simplifying observational studies of apples) and come up with a new apple based logo.



Techniques and Mediums

Study the simple apple to explore a range of methods and materials.

Why aren't apples blue?

Objective

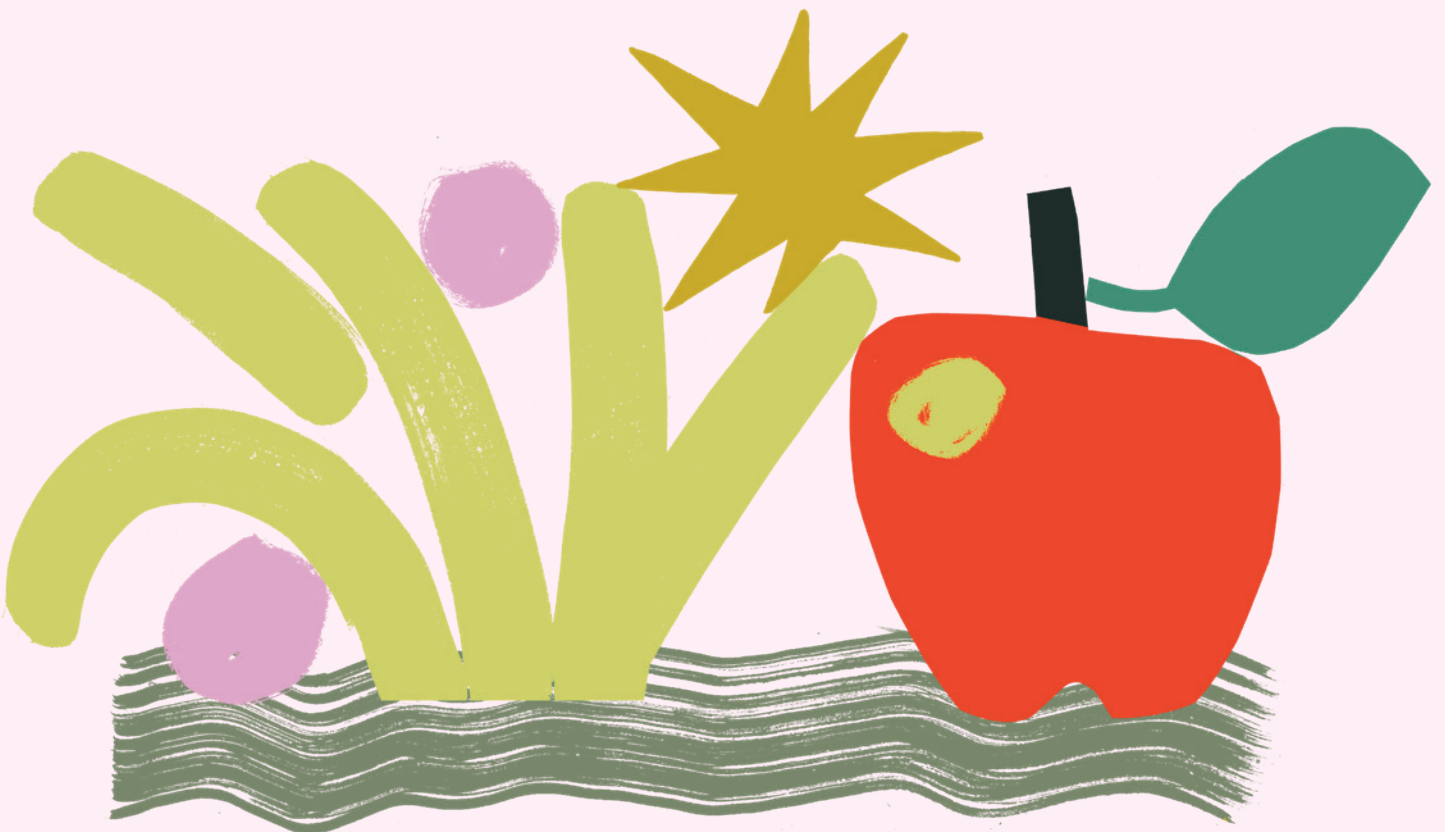
Learn about primary and secondary colours.

Activities

- Teacher sets up a fruit bowl of red and green apples.
- Discuss primary and secondary colours using a set of primary paints (red, yellow & blue).
- Students mix yellow and blue to make green to paint the green apples.

Extend

- Teacher adds different fruits to the bowl (e.g. oranges and purple grapes) for the students to paint by mixing colours.



What does the symbol of an apple represent?

Artistic Expression and History

Understand the apples symbolic significance in art.

Objective

Study how apples are depicted in famous artworks.

Activities

- Discuss the concept of symbols and what different meanings might be associated with apples in art(e.g. Knowledge, temptation, beauty, sin etc.)
- Look at examples of apples in art history (e.g. Cézanne's still lifes, Magritte's The Son of Man, Arcimboldo's Feast for the eyes etc).
- Create a piece inspired by one of these artists experimenting with different mediums such as painting, collage, photography, digital etc.



ART

Nature art

Does it matter
if an artwork doesn't last?

Artistic Expression and History

Understand the apples symbolic significance in art.

Objective

Create artwork using natural materials inspired by artist Anya Gallaccio.

Activities

- Show examples of Anya Gallaccio's apple curtain artworks and work of Land Artists such as Robert Smithson, Nancy Holt and Agnes Deynes to to discuss if all art needs to be permanent to be of value.
- Take students on a short nature walk to collect natural materials.
- Work together as a class to create a collaborative artwork using the collected materials either inside or outside.

Extend

- Experiment with creating natural dyes from plants and use them to paint or dye paper.



How many varieties of apples are there?

Everyday Observations

Use apples as your tool help visualise basic counting and sorting.

Objective

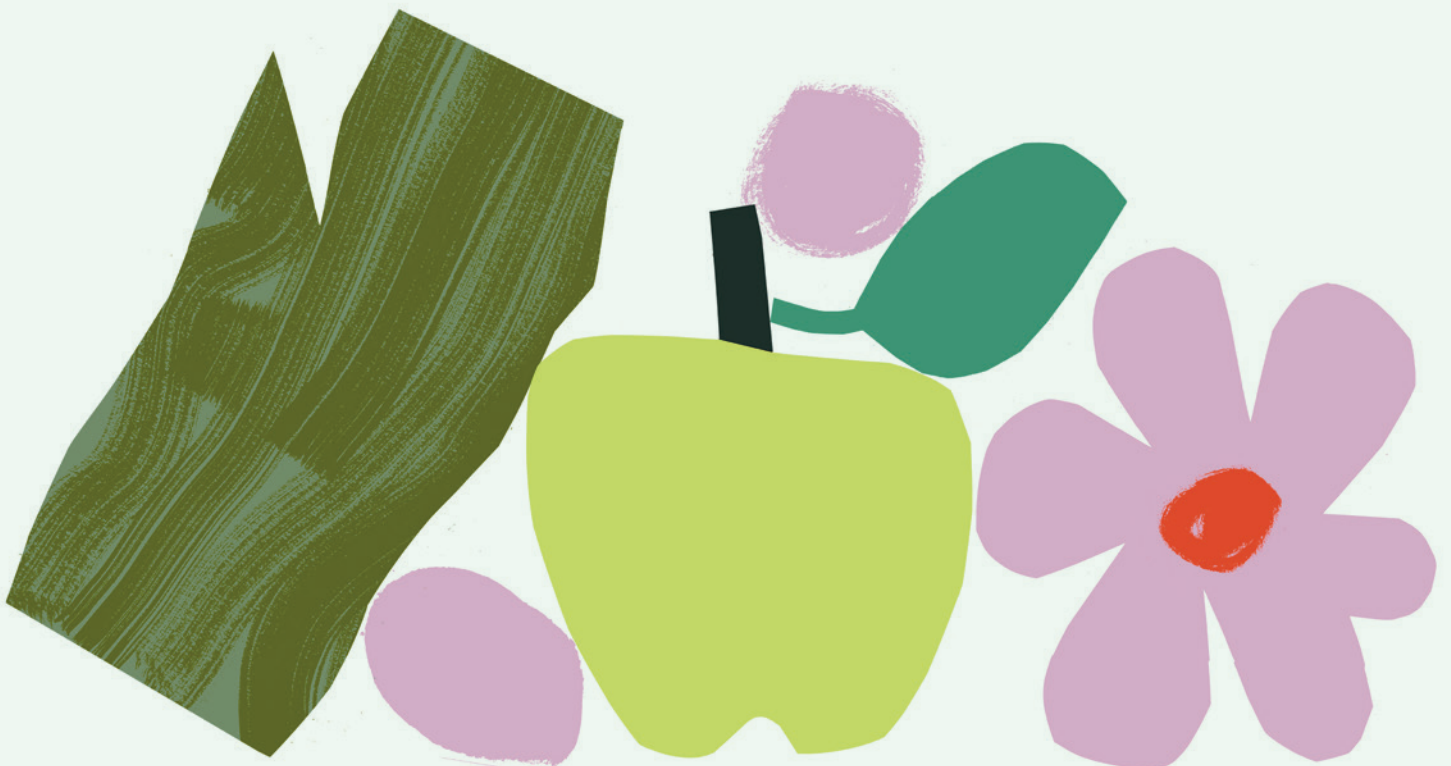
Practice counting, basic addition, sorting and categorisation.

Activities

- Use apples to count, group, and add together.
- Sort apples by colour, size, or type. Discuss the categories and count how many are in each group.

Extend

- Weigh and measure the circumference of different apples and compare.
- Collect data on different apple types (e.g. weight, size, colour) and input it into a spreadsheet. Students analyse the data using basic functions to find averages or create charts.



What will you find
inside the apple?

Cut and Divide

Use apples as your visual tool to physically understand the process of fractions.

Objective

Understand fractions through division.

Activities

- Use apples to teach fractions by cutting them into halves, quarters, etc.
- Ask questions like, "If we cut an apple into 4 pieces, how many pieces do we have?"
- Have students draw their apple and illustrate the cuts (half, quarter).

Extend

- Use the cut apples to explore principles of symmetry. Students create symmetrical patterns.



How many patterns
can you spot
in nature?

Plotting

Design your own unique orchard via the process of pattern making.

Objective

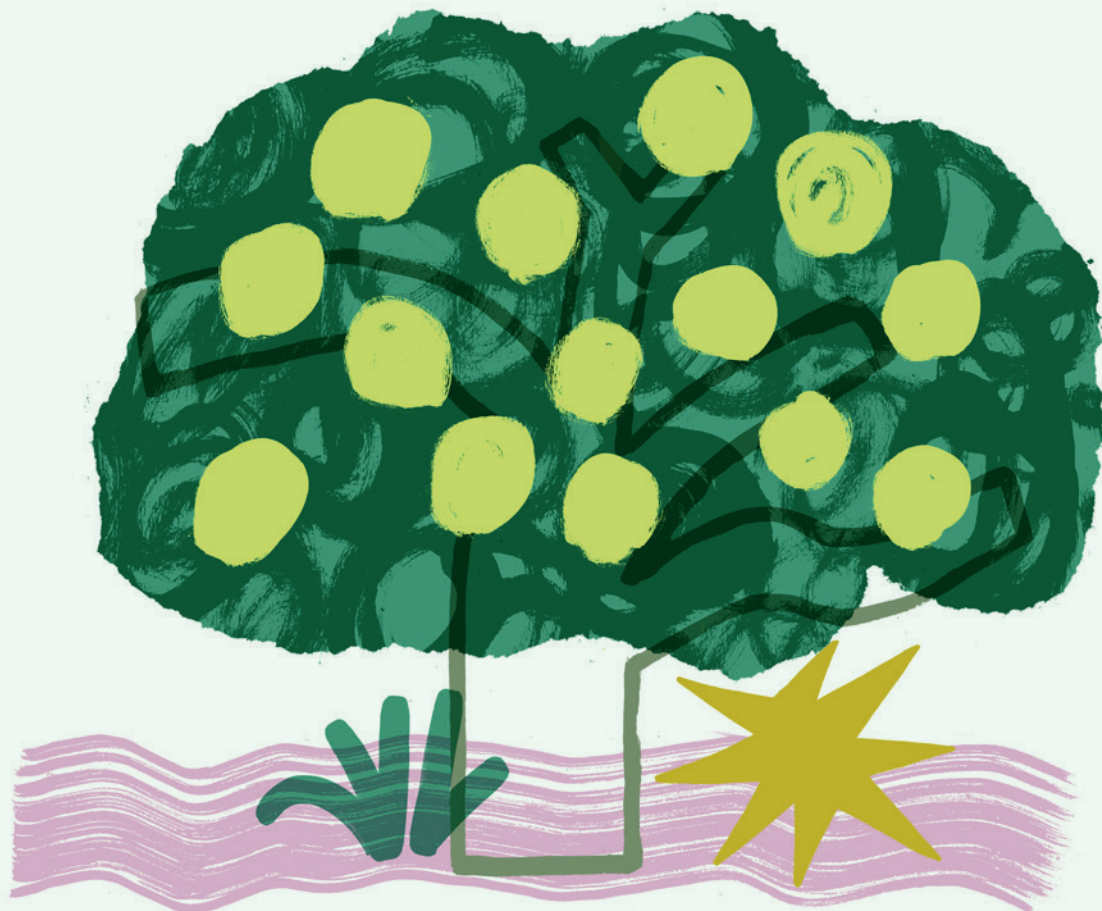
Integrate various maths skills from creating and managing a mini orchard.

Activities

- Design an orchard by labelling rows for different apple types. This can be made more detailed by setting a scale and taking measurements for tree spacing.
- Calculate growth (e.g. if a tree produces 4 apples per week, how many will it produce in a month?)
- Plot a graph to plot number of apples produced.
- Discuss patterns or trends in production.

Extend

- Introduce a budgeting component where students allocate resources for planting and maintaining the orchard, helping them learn about financial planning.



ADDITIONAL IDEAS

Homework Ideas Grid

- 🍏 Take an apple home with you. Your only instructions are you must do something with your apple and if possible document it. Be as creative as you can.
- 🍏 Write down all the possible uses of an apple you can think of.
- 🍏 Where does your food come from? Next time you are in the supermarket, look at the labels on the apples and count how many different countries they come from.
- 🍏 Write a short story from the perspective of an apple seed growing into a tree, including challenges and milestones throughout the life cycle.
- 🍏 Research and present on technologies used in modern apple farming, such as drones or automated harvesting machines. Discuss how these technologies improve efficiency and yield.
- 🍏 What can you make from an apple that isn't food?
- 🍏 Design a machine that turns apples into something else.
- 🍏 Make a fruit bowl out of papier-mâché or weave an apple basket out of strips of card.
- 🍏 Learn about how the apple logo was designed and come up with your own design inspired by apples.
- 🍏 Find out how apples get their names, (e.g. Granny Smith, Pink Lady, Golden Delicious etc.)



ADDITIONAL IDEAS

Apple Orchard Visit

Organise a field trip to Brogdale Collections in Faversham, the home of the national fruit collection. Tour the orchards and press apples to make juice. The educational team can also provide bespoke outreach sessions within your setting. Visit their website to find out more: brogdalecollections.org

Community Event

Host an apple festival showcasing student projects and apple-themed activities such as a bake sales and science experiments.

Apple Themed Sports Day

- Relay race to get as many apples into teams basket.
- Apple and spoon race.
- Apple bobbing.
- Apple toss into buckets or through hoops.



ADDITIONAL IDEAS

Apple Phrases

Discuss as a class the meaning and origin of a different apple based phrase each day and come up with more.

- **An apple a day keeps the doctor away.**
Eating apples regularly promotes good health.
- **The apple doesn't fall far from the tree.**
Children often resemble their parents in behavior or traits.
- **Upset the apple cart.**
To disrupt or spoil a plan or situation.
- **As American as apple pie.**
Something quintessentially American.
- **Rotten to the core.**
Thoroughly bad or corrupt.
- **One bad apple spoils the barrel.**
One bad person or thing can ruin the whole group.
- **Apple of my eye.**
Someone cherished above all others.
- **Apples and oranges.**
Comparing two very different things.
- **Comparing apples to apples.**
Comparing things that are very similar.
- **Adam's apple.**
The noticeable bump in a man's throat formed by the thyroid cartilage, originating from the story of Adam and Eve.