



Science

"How Plants Grow"

1	Exploring the purposes of the roots of a plant, and how they grow.
2	Learning how water, absorbed by the roots, is transported to all the different parts of the plant.
3	Finding out how plants make their own food using light and air.
4	Exploring how plants reproduce through the processes of seed dispersal, pollination and fertilisation.
5	Exploring seed dispersal in more details.
6	Studying the structure of seeds and consider why they're an important food source.
Objectives:	<ul style="list-style-type: none"> Year 3 - asking relevant questions and using different types of scientific enquiries to answer them Year 3 - setting up simple practical enquiries, comparative and fair tests Year 3 - making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers Year 3 - gathering, recording, classifying and presenting data in a variety of ways to help in answering questions Year 3 - recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables Year 3 - reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions Year 3 - using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions Year 3 - identifying differences, similarities or changes related to simple scientific ideas and processes Year 3 - using straightforward scientific evidence to answer questions or to support their findings Year 3 - identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers Year 3 - investigate the way in which water is transported within plants Year 3 - explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal



Art

"Plant Art"

1	Evaluating and commenting on the artwork of others, all based around the theme of plants.
2	Exploring and completing botanical drawings.
3	Learning how to mix and different tints, shades and tones in flower artwork.
4	Learning how to create the illusion of depth through tree-based artwork.
5	Creating flower-themed sculptures using clay.
6	Choosing their own style and media to create a piece of plant-themed artwork.
Objectives:	<ul style="list-style-type: none"> KS2 - to create sketch books to record their observations KS2 - use sketchbooks to review and revisit ideas KS2 - to improve their mastery of art and design techniques, including drawing with a range of materials KS2 - to improve their mastery of art and design techniques, including painting with a range of materials KS2 - to improve their mastery of art and design techniques, including sculpture with a range of materials KS2 - about great artists in history



Geography

"Plants of the World"

1	Locating where some of the world's strangest plants on a world map, identifying the country and continent.
2	Learning about different biomes, where they are in the world and what kind of plants can be found in each one.
3	Exploring extreme desert climates and learning about the plants that can survive there.
4	Learning about the important role of plants in agriculture and food.
5	Exploring all the many ways humans use plants, including for medicine, wood, fabric, artwork and more.
6	Finding out about the seventeen mega-diverse countries of the world and the many plants that grow there.
Objectives:	<ul style="list-style-type: none"> KS2 - locate the world's countries, using maps to focus on Europe (including the location of Russia) and North and South America, concentrating on their environmental regions, key physical and human characteristics, countries, and major cities KS2 - describe and understand key aspects of physical geography, including: climate zones, biomes and vegetation belts, rivers, mountains, volcanoes and earthquakes, and the water cycle KS2 - describe and understand key aspects of human geography, including: types of settlement and land use, economic activity including trade links, and the distribution of natural resources including energy, food, minerals and water KS2 - use maps, atlases, globes and digital/computer mapping to locate countries and describe features studied



DT

"Making Mini Greenhouses"

1	Exploring what greenhouses are, how they work and how they are used.
2	Exploring ways of making a stable structure to allow the maximum sunlight to enter.
3	Exploring and comparing a range of different materials to find the most suitable materials for making a greenhouse.
4	Designing a mini greenhouse based on specific design criteria.
5	Constructing mini greenhouses from their designs.
6	Evaluating their completed mini greenhouses.
Objectives:	<ul style="list-style-type: none"> KS2 - use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups KS2 - generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design KS2 - select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately KS2 - select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities KS2 - investigate and analyse a range of existing products KS2 - evaluate their ideas and products against their own design criteria and consider the views of others to improve their work KS2 - understand how key events and individuals in design and technology have helped shape the world KS2 - apply their understanding of how to strengthen, stiffen and reinforce more complex structures

Plants

Teacher's Topic Planner

Maths

Computing

English

Science

"How Plants Grow"

PlanBee 

History

Geography

"Plants of the World"

PlanBee 

RE

Art

"Plant Art"

PlanBee 

DT

"Making Mini Greenhouses"

PlanBee 

Languages

Music

Teacher's notes:



Science

"How Plants Grow"



Geography

"Plants of the World"



Art

"Plant Art"



DT

"Making Mini Greenhouses"

How Plants Grow : Science : Year 3

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To identify and describe the functions of the roots of flowering plants.	Children will recap the main features of flowering plants, then learn about how roots grow, and what their functions are. They will then plan an experiment where they will grow beans, measuring root growth.	<ul style="list-style-type: none"> Can children name the main parts of flowering plants? Can children explain the function of roots? Can children record findings and draw conclusions? 	<ul style="list-style-type: none"> Slides Worksheets 1A/1B/1C Growing Beans worksheet Dried bean seeds (butter beans, kidney beans or similar) Cotton wool Clear pots or jars Water
Lesson 2	To investigate the way in which water is transported within plants.	Children will learn how water, absorbed by the roots is distributed around the plant via the stem. They will then conduct experiments where the capillary action in plant stems can be observed.	<ul style="list-style-type: none"> Can children explain where plants get their water from? Can children name the parts of the plant that transport water? Can children plan and carry out simple investigations? Can children draw simple conclusions? 	<ul style="list-style-type: none"> Slides Worksheets 2A/2B/2C Celery, food dye, water, plastic containers Plastic cups, kitchen roll (FSD? activity only)
Lesson 3	To identify and describe the functions of leaves in flowering plants.	Children will start to learn how plants make their own food using air and sunlight. They will then either describe parts of this process in their own words, or plan and conduct an experiment to show the importance of light for plant growth.	<ul style="list-style-type: none"> Can children say what plants need to produce their own food? Can children explain the function of leaves in flowering plants? Can children start to explain some stages in the life cycle of flowering plants? 	<ul style="list-style-type: none"> Slides Worksheets 3A/3B/3C Life Cycle Flowchart Equipment as listed below (FSD? activity only)
Lesson 4	To explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	Children will start to identify the parts of a flower, and how pollination occurs. They will then continue to identify and label the parts of a flower by drawing diagrams or dissecting flowers.	<ul style="list-style-type: none"> Can children name the main parts of flowers? Can children describe the functions of the main parts of flowers? Are children able to describe one of the ways in which flowering plants reproduce? Do children know how and where seeds are formed in flowering plants? 	<ul style="list-style-type: none"> Slides Worksheets 4A/4B/4C Dissecting Flowers worksheet (FSD? activity only) Double-sided sticky tape (FSD? activity only) Sticky tape or sticky-backed plastic (FSD? activity only) Tweezers (FSD? activity only) Flowers (FSD? activity only)
Lesson 5	To explore some of the ways in which flowering plants disperse their seeds.	Children will learn how the ovaries of flowering plants grow to form seeds, and how they may be dispersed in a variety of ways. They will then either continue to study in-depth some ways in which seeds are dispersed, or identify seeds found outside.	<ul style="list-style-type: none"> Can children explain why flowering plants need to disperse their seeds? Can children describe some ways in which seeds are dispersed? Can children identify how seeds are dispersed based on their appearance? 	<ul style="list-style-type: none"> Slides Worksheets 5A/5B/5C Fruits and Seeds sheet Seed Dispersal Fact File (FSD? activity only)
Lesson 6	To understand the structure of seeds and their importance as a food source.	Children will learn about the structure of seeds and how plants grow from them. They will then either taste and compare seeds, or make seed cake bird feeders.	<ul style="list-style-type: none"> Can children name the parts of a seed and describe their functions? Can children identify the parts of a seed? Do children know why seeds are an important food source for animals? 	<ul style="list-style-type: none"> Slides End of Unit Quiz Worksheets 6A/6B/6C A variety of different edible beans and seeds Bird Seed Cakes sheet (FSD? activity only) Bird seed mix (FSD? only) Lard or equivalent (FSD? only) Bread crumbs, cheese, oats, dried fruit {optional} (FSD? only) Yogurt pots (FSD? only) String (FSD? only)

Plants of the World : Geography : Year 3/4

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To be able to identify the location of plants around the world.	Children will discover some of the strangest plants from around the world, locating them on a world map and identifying the continent and country in which they can be found.	<ul style="list-style-type: none"> Can children identify and locate the seven continents of the world? Can children identify and locate various countries around the world? Can children use a map to locate unfamiliar countries? 	Slides World Map Worksheet 1A/1B/1C Plant Cards 1A/1B World Continents Card Blank World Map (FSD? activity only) Large sheets of paper (FSD? activity only)
Lesson 2	To explore what biomes are and identify major biomes around the world.	Children will consider whether all plants can grow in different places around the world. They will then go on to explore the main climate zones and biomes of the world, identifying plants that grow in a particular biome and where these biomes are around the world.	<ul style="list-style-type: none"> Do children understand what a biome is? Can children name and describe some of the major biomes around the world? Do children know that climates around the world affect which plants can grow in different areas? 	Slides World Biomes Map (teaching input) World Map (teaching input) Worksheet 2A/2B/2C Challenge Cards (FSD? activity only) Access to books/internet (FSD? activity only) Research Sheet (FSD? activity only)
Lesson 3	Exploring how plants survive in extreme environments.	Children will explore desert biomes and identify both hot and cold deserts as being the most extreme climates in the world. They will find out about plants that grow in these biomes and how they have adapted to suit their environment, and investigate what deserts are like.	<ul style="list-style-type: none"> Can children identify major biomes and climate zones around the world? Can children describe what hot and cold desert climates are like? Can children describe some of the ways in which plants have adapted in order to survive in extreme conditions? 	Slides Worksheet 3A/3B/3C Question Cards Information Sheet Picture Cards Challenge Cards (FSD? activity only)
Lesson 4	To explore the role of plants in agriculture.	Children will start by thinking about all the plants they know that we eat. They are then given a brief overview of some of the staple foods in our diet that come from plants, and what agriculture is. They will find out why some crops grow better in different parts of the world than others, and how plants get from the fields to our tables.	<ul style="list-style-type: none"> Do children know that plants are crucial to agriculture and human survival? Do children know that not all plants can grow in the same climates? Can children identify plants for food that grow in different parts of the world? 	Slides Sentence Cards Question Cards 4A/4B Climate Zone Map World Map Food Fact Cards (FSD? activity only)
Lesson 5	To explore ways in which humans use plants.	Children are challenged to organise a set of objects into those we get from plants and those we don't, before looking at some of the many ways in which humans use plants, including for wood, paper, medicine, fabrics, rubber and cosmetics.	<ul style="list-style-type: none"> Can children name some of the ways in which plants are crucial to survival on Earth? Can children name some of the ways in which humans use plants? Do children understand that humans are not always responsible in the way they use plants, and some of the consequences of this? 	Slides Object Cards Plant Use Mindmap Plant Use Booklet Template Poster Template Blank Mindmap (FSD? activity only)
Lesson 6	To investigate the plants found in mega-diverse countries.	Children will define the word 'biodiversity' and find out what a mega-diverse country is. They will identify the 17 mega-diverse countries in the world and locate them on a map before carrying out their own research into one of these mega-diverse countries.	<ul style="list-style-type: none"> Do children understand what biodiversity and mega-diversity are? Can children use sources of information to find out about the plants in a mega-diverse country? Do children understand the word 'endemic' and identify plants that are endemic to a particular country? 	Slides Worksheet 6A/6B/6C Country Cards Access to the internet Question Cards A/B (FSD? activity only)

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To appreciate the work of different artists	In this first lesson, children will look at and discuss a variety of different plant-themed artworks, by different artists, created in different periods of time. In their independent activities, children will choose one artwork to explore their opinion of in more detail. In the alternative activity, children will look at each artwork in pairs, expressing what they like and don't like about each one, and sharing their reasoning.	<ul style="list-style-type: none"> Can children identify an artwork that is visually pleasing to them? Can children give their personal opinion of different artworks? Can children listen to others' opinions of artworks, and try to see their point of view? 	<ul style="list-style-type: none"> Slides Art Cards (Teaching Input and FSD? activity) Worksheet 1A/1B/1C Mini Art Cards Questions Card
Lesson 2	To develop observational skills	Children will find out what botanical illustrations are, and the original reasons for which they were created. They will look at the differences between these types of illustrations and other paintings of plants. Children will discuss how they can create detailed illustrations like these, by using constant observation, attention to detail, and patience. In their independent activities, they will practise these skills by drawing leaves. In the alternative activity, the children will create a class botanical diary of the plants in their school grounds or area.	<ul style="list-style-type: none"> Do children know what a botanical illustration is and why they were first created? Can children use their observational skills to create a detailed sketch of part of a plant? Can children express their opinion about this style of drawing? 	<ul style="list-style-type: none"> Slides Botanical Sketch Sheet 'CAP' Reminder Cards Sketching pencils Leaves (collected from outside, or bought mixed salad leaves) Botanical Diary Sheets (FSD? activity only) Magnifying glasses (optional)
Lesson 3	To know how to create tints, shades and tones of colours	In this lesson, children will examine colour more closely. They will learn how different tones of colour can be used to create different effects in an artwork, and will use the work of Georgia O'Keeffe to explore this. Children will learn how to mix tints, shades and tones of a colour. They will apply this knowledge to their independent work, where they are challenged to paint a flower from given photographs. Alternatively, as a group, children will paint separate petals and leaves, then combine them to create a large Georgia O'Keeffe-style flower painting.	<ul style="list-style-type: none"> Do children understand the difference between tints, shades and tones? Can children create tints, shades and tones to match a given colour? Can children use tints, shades and tones to create an artwork? 	<ul style="list-style-type: none"> Slides Worksheet 3A/3B/3C Flower Cards Set A/B Paints (powder paints or ready-mixed paint) Petal and Leaf Templates (FSD? activity only) 40cm square sheets of paper (FSD? activity only) Instructions Sheet (FSD? activity only)
Lesson 4	To know how to create depth in an artwork	Children will first learn and practise how to draw a tree, focusing on the branches. They will then explore what depth is, and how it can be created in an artwork. Children will use both their skill of how to draw a tree and their understanding of depth to create their own forest scene in the independent activity. In the alternative activity, children will use layers of coloured card to create depth in their artwork.	<ul style="list-style-type: none"> Do children understand what depth in an artwork is? Do children understand how artists create the illusion of depth in their artwork? Can children create the illusion of depth in their artwork? 	<ul style="list-style-type: none"> Slides A5 paper (Teaching Input) How to Draw a Tree Help Sheet Creating Depth Help Sheet A3 or A4 paper Paints and paintbrushes of different thicknesses Tree Templates (FSD? activity only) Different shades of coloured card (FSD? activity only) Depth by Layering Instruction Sheet (FSD? activity only) Scissors, double-sided sticky tape (FSD? activity only)
Lesson 5	To create sculptures using clay	In this lesson, children will learn what a sculpture is, and what materials they can be made out of. They will focus on sculptures made from clay, and will find out how to add or remove bits of clay to create detail. In their independent activities, children will be challenged to make their own flower-themed artwork from clay, in the form of a flower bowl, or a 3D flower sculpture.	<ul style="list-style-type: none"> Do children understand what a sculpture is and what different materials they can be made from? Do children know how to add or remove bits of clay to create detail? Can children make their own simple sculpture from clay? 	<ul style="list-style-type: none"> Slides Flower Bowl Template Sheet Flower Bowl Instruction Sheet Flower Bowl Challenge Cards Clay, clay tools, small plastic bowls (base diameter of 8cm or less), clingfilm Flower Sculpture Instruction Sheet (FSD? activity only) 3mm width wooden dowel sticks, 20-30cm in length (FSD? activity only)
Lesson 6	To plan and create a piece of artwork	In this final lesson, children will use all of the skills and knowledge they have gained in the previous lessons to discuss how they might recreate pictures of different plants as artworks. In their independent lessons, children will choose one of these plants to plan and create a piece of artwork for. In the alternative activity, children are challenged to use nature itself as the media or tools with which to create a piece of art.	<ul style="list-style-type: none"> Can children discuss how to represent a plant as a piece of art? Can children design their artwork and give reasons for their choices? Can children create their artwork from a given plan? 	<ul style="list-style-type: none"> Slides Picture Cards (Interactive Starter) Question Cards (Interactive Starter) Worksheet 6A/6B/6C Selection of different media for children to choose from Challenge Card (FSD? activity only)

Making Mini Greenhouses : DT : Year 3/4

	Learning Objective	Overview	Assessment Questions	Resources
Lesson 1	To explore existing greenhouses	In this first lesson, children will find out the purpose of a greenhouse, and how it can help plants to grow. In their independent activity they will show their understanding of this by labelling diagrams, answering questions and writing explanations. In the alternative activity, children will look at and discuss a range of different types of greenhouses.	<ul style="list-style-type: none"> Do children know what a greenhouse is used for? Do children know how a greenhouse helps plants to grow? Can children analyse and discuss different types of greenhouses? 	<ul style="list-style-type: none"> Slides Worksheet 1A/1B/1C Greenhouse Picture Cards (FSD? activity only)
Lesson 2	To investigate stable structures	Children will explore the factors that make a structure stable, and then apply this knowledge and understanding to greenhouses. In their independent activities, children will investigate the best frame size and shape for a stable structure that also lets in the maximum amount of sunlight. In the FSD? activity, children focus on how they could improve the stability of a structure by using other materials as extra support.	<ul style="list-style-type: none"> Do children understand the term 'stable'? Can they identify factors that make a structure stable? Can they discuss how to make a structure more/less stable? 	<ul style="list-style-type: none"> Slides Instructions Cards 3D Shape Templates A/B/C/D Scissors, glue 3D Shape Template E (FSD? activity only) Stability Testing Sheet (FSD? activity only) Ideas Cards (FSD? activity only) Extra card, dowelling, straws, sellotape, glue, staplers, etc (FSD? activity only)
Lesson 3	To investigate materials for making a mini greenhouse	Children will begin by debating the effectiveness of a mini greenhouse in comparison to a full-size greenhouse. They will then share ideas for which materials they think might be suitable for the frame and the sections within the frame of a mini greenhouse. Children further explore and compare suitable materials in their independent activities.	<ul style="list-style-type: none"> Can children identify suitable materials for a mini greenhouse? Can children explain why these materials are suitable? Can children discuss ways of joining these two materials together? 	<ul style="list-style-type: none"> Slides Worksheet 3A/3B/3C Worksheet 3D (FSD? activity only) Variety of materials for possible frames/coverings such as lolly sticks, dowelling, plastic wallets, clingfilm, straws, pipe cleaners, old hula hoops, plastic bottles, CD cases, wooden picture frames with glass removed, chickenwire etc (FSD? activity only)
Lesson 4	To design a mini greenhouse	In this lesson, children are split into groups and given discussion cards which will encourage them to share opinions and generate ideas about the best designs for a mini greenhouse. They will then use what they have discussed to design and plan their mini greenhouse.	<ul style="list-style-type: none"> Can children apply their knowledge of stable structures and suitable materials when designing a mini greenhouse? Can children follow specific design criteria? Can children identify possible challenging parts of their design/help others to find solutions? 	<ul style="list-style-type: none"> Slides Discussion Cards Worksheet 4A/4B/4C Paper/mini whiteboards (optional) Client Request Cards (FSD? activity only) Worksheet 4D (FSD? activity only)
Lesson 5	To make a mini greenhouse	Children will make their mini greenhouses according to their plans and design criteria. They will be encouraged to be organised and think carefully about each step in the making process. Children will be reminded that, if necessary, they can make changes to their design to improve the overall finished product. They will discuss any safety issues before beginning.	<ul style="list-style-type: none"> Can children follow a design to create a successful product? Can children amend their design to improve a product/give suggestions to others as solutions to problems? Can children work safely and sensibly with a range of materials and tools? 	<ul style="list-style-type: none"> Slides Equipment such as scissors, sellotape, glue, staplers Children's worksheets from Lesson 4 Materials (refer to children's designs from the previous lesson as to what specific materials will be required). Comment Cards
Lesson 6	To evaluate a finished product	In this final lesson, children will understand the importance of evaluating a finished product, and as a class will generate possible suitable questions. In their independent activities, children will evaluate their own completed mini greenhouse. In the alternative activity, children will discuss, evaluate and assess different aspects of each other's designs as a class.	<ul style="list-style-type: none"> Do children understand the importance of evaluating a finished product? Can children identify what has been successful with their design? Can children identify any improvements that could be made to the design? 	<ul style="list-style-type: none"> Slides Evaluation Question Cards Worksheet 6A/6B Pitch It! Prompt Cards Whiteboards/paper (optional) Evaluation Question List (FSD? activity only)