|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Subject Science - Year 7 Medium Term Plan/SOW** | | | | | **The Academy of St Francis of Assisi** | |
|  | **Title : Big Idea Ecosystems** | | | | **Number of lessons in sequence** | **10 / 12 lessons** |
| **Overarching Curricular Goals (Aims)** | | **By the end of this unit students will:**  **Interdependence**  Student will use key terms to describe different organisms within a food chain and interpret food webs. They understand the meaning of interdependence and will describe how changes in the environment can affect different organisms within a food web, including the process of bioaccumulation. Students will use quadrats to carry out random sampling, and be able to write a method and calculate mean values from population data.  **Plant reproduction**  Students will know the main parts of the flower and the process of pollination. They will have drawn comparisons with human reproduction. They will understand the mechanisms of fertilisation and seed formation in plants. Students will investigate seed dispersal, with a focus on the different variables that affect seed dispersal. | | **Links to National Curriculum**  **Links to & building upon prior learning Including KS2 if Yr7** | KS2 NC Links  Describe the life process of reproduction in some plants. Construct and interpret a variety of food chains, identifying producers, predators and prey. Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant. Investigate the way in which water is transported within plants. Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal  KS3 NC Links  The interdependence of organisms in an ecosystem, including food webs and insect pollinated crops The importance of plant reproduction through insect pollination in human food security How organisms affect, and are affected by, their environment, including the accumulation of toxic materials. Reproduction in plants, including flower structure, wind and insect pollination, fertilisation, seed and fruit formation and dispersal, including quantitative investigation of some dispersal mechanisms  NC KS4 Links  The need for transport systems in multicellular organisms, including plants. Photosynthesis as the key process for food production and therefore biomass for life. The process of photosynthesis. Levels of organisation within an ecosystem. Some abiotic and biotic factors which affect communities; the importance of interactions between organisms in a community. How materials cycle through abiotic and biotic components of ecosystems. The role of microorganisms (decomposers) in the cycling of materials through an ecosystem. Organisms are interdependent and are adapted to their environment. The importance of biodiversity. Methods of identifying species and measuring distribution, frequency and abundance of species within a habitat. Positive and negative human interactions with ecosystems. | |
| **Outcomes/**  **Success Criteria** | | **Knowledge Learners will:**  **Interdependence**  Organisms in a food web (decomposers, producers and consumers) depend on each other for nutrients. So, a change in one population leads to changes in others. The population of a species is affected by the number of its predators and prey, disease, pollution and competition between individuals for limited resources such as water and nutrients. Insects are needed to pollinate food crops. A food web shows how food chains in an ecosystem are linked. A food chain is part of a food web, starting with a producer, ending with a top predator. An ecosystem is the area where organisms live including their non-living environment. The surrounding e.g. air, water and soil where an organism lives is known as the environment. Group of the same species living in an area is known as a population. A producer is a green plant or algae that makes its own food using sunlight. A consume is an animal that eats other animals or plants. A decomposer is an organism that breaks down dead plant and animal material so nutrients can be recycled back to the soil or water.  **Plant reproduction**  Plants have adaptations to disperse seeds using wind, water or animals. Plants reproduce sexually to produce seeds, which are formed following fertilisation in the ovary. Flowers contain the plant’s reproductive organs. Pollen can be carried by the wind, pollinating insects or other animals. Pollen contains the plant male sex cells found on the stamens. Ovules are the female sex cells in plants and are found in the ovary. Pollination is the transfer of pollen from the male part of the flower to the female part of the flower on the same or another plant. Fertilisation is the joining of a nucleus from a male and female sex cell. Seeds contain the embryo of a new plant. The fruit of a plant is the ovary after fertilisation, it contains seeds. The Carpel is the female part of the flower, made up of the stigma where the pollen lands, style and ovary.  **Skills: Learners will:**  **Interdependence**  Describe how a species’ population changes as its predator or prey population changes. Explain effects of environmental changes and toxic materials on a species’ population. Combine food chains to form a food web. Explain issues with human food supplies in terms of insect pollinators. Suggest what might happen when an unfamiliar species is introduced into a food web. Develop an argument about how toxic substances can accumulate in human food. Make a deduction based on data about what caused a change in the population of a species.  **Plant reproduction**  Describe the main steps that take place when a plant reproduces successfully. Identify parts of the flower and link their structure to their function. Suggest how a plant carried out seed dispersal based on the features of its fruit or seed. Explain why seed dispersal is important to survival of the parent plant and its offspring. Describe similarities and differences between the structures of wind pollinated and insect pollinated plants. Suggest how plant breeders use knowledge of pollination to carry out selective breeding. Develop an argument why a particular plant structure increases the likelihood of successful production of offspring. | |  |  | |
| **2/3 tier vocabulary.** | | **Differentiation/Scaffolding/Support.** | **Stretch and challenge opportunities in class, enrichment and home learning.** | **Opportunities for wider reading/Listening/watching.** | | |
| [Keywords](\\\\asfa-fs03\\StaffShared$\\Science\\Key Stage 3\\Activate Year 7 Resources\\09 Ecosystems\\Ecosystems 1\\Worksheets\\Glossary.pdf)  **Food web:** Shows how food chains in an ecosystem are linked.  **Food chain**: Part of a food web, starting with a producer, ending with a top predator.  **Ecosystem**: The living things in a given area and their non-living environment.  Environment: The surrounding air, water and soil where an organism lives.  **Population:** Group of the same species living in an area.  **Producer**: Green plant or algae that makes its own food using sunlight.  **Consumer**: Animal that eats other animals or plants.  **Decomposer**: Organism that breaks down dead plant and animal material so nutrients can be recycled back to the soil or water.  **Pollen**: Contains the plant male sex cells found on the stamens.  **Ovules**: Female sex cells in plants found in the ovary.  **Pollination**: the transfer of pollen from the male part of the flower to the female part of the flower on the same or another plant.  **Fertilisation**: Joining of a nucleus from a male and female sex cell.  **Seed:** Structure that contains the embryo of a new plant.  **Fruit:** Structure that the ovary becomes after fertilisation, which contains seeds.  **Carpel:** The female part of the flower, made up of the stigma where the pollen lands, style and ovary | | **Knowledge Support:**   * Key facts. * [Knowledge organisers.](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Worksheets\Knowledge%20Organiser.pdf)   **Reading support**:   * Explicit vocabulary delivery * [Glossary of terms](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Worksheets\Glossary.pdf) * Visualizer to support whole class reading. * Keyword discussion and annotation.   **Skills support:**   * Support sheets * Practical guidance sheets. * Practical scaffolding. * Demonstrations and discussions. * Writing frames. | Lesson assessment task differentiated to support and challenge.  Extension - Differentiated / challenge questions  [Big Idea Ecosystem Interdependence - Level 1](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Big%20Idea%20Ecosystems%20-%20Interdependence%20(Level%201)%20questions.doc)  [Big Idea Ecosystem Interdependence - Level 2](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Big%20Idea%20Ecosystems%20-%20Interdependence%20(Level%202)%20questions.doc)  [Big Idea Ecosystem Interdependence - Level 3](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Big%20Idea%20Ecosystems%20-%20Interdependence%20(Level%203)%20questions.doc)  Seneca Learning KS3 Science  <https://app.senecalearning.com/classroom/course/419c7523-d408-4bc7-9b96-f7f12abdacae>  Oak academy  <https://classroom.thenational.academy/subjects-by-key-stage/key-stage-3/subjects/science>  BBC Bitesize  <https://www.bbc.co.uk/bitesize/levels/z98jmp3>  National Geographic  <https://www.nationalgeographic.org/education/classroom-resources/>  **Scholarship:**  National geographic  <https://www.nationalgeographic.org/encyclopedia/ecosystem/>  British ecological society  <https://besjournals.onlinelibrary.wiley.com/>  British ecological society  <https://www.britishecologicalsociety.org/>  Conservation.org  <https://www.conservation.org/> | National geographic  [www.nationalgeographic.org](http://www.nationalgeographic.org)  What is ecology?  <https://www.britishecologicalsociety.org/about/what-is-ecology/>  Food Chains and Webs  <https://classroom.thenational.academy/lessons/food-chains-and-webs-64uk4e>  Representing Food Chains  <https://classroom.thenational.academy/lessons/representing-food-chains-60u34e>  Decay  <https://classroom.thenational.academy/lessons/decay-6wu32d>  Impacts on Food Webs  <https://classroom.thenational.academy/lessons/impacts-on-food-webs-69j3et>  Random Sampling  <https://classroom.thenational.academy/lessons/random-sampling-cgvk8d>  Estimating Populations  <https://classroom.thenational.academy/lessons/estimating-populations-6gu3cc>  Plant reproduction  <https://classroom.thenational.academy/lessons/plant-reproduction-6ngkgd>  Seed formation and dispersal  <https://classroom.thenational.academy/lessons/seed-formation-and-dispersal-cmvp4e>  Investigating seed dispersal  <https://classroom.thenational.academy/lessons/practical-seed-dispersal-6xh6ce> | | |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Unit Title** | **Sequence of learning Lesson title, theme, big question.** | **Key concepts/outcomes/knowledge and skills.** | **Assessment/ including specific content/ knowledge/skills tested.** | **HWK. To be in books clearly marked** | **Furthering Cultural Capital.**  **&** | **Recall of prior or future topics –** | **Lesson resources including or hyperlink to supporting websites/resources/books/texts & individual lessons.** |
| Topic 9: Interdependence | 9.1.1: Food chains and webs  This lesson looks at using key terms to describe different organisms within a food web and interpreting food webs.  (1 lesson) | Know  - State the definition of a food chain.  - State the definition of a food web.  Apply  - Describe what food chains show.  - Describe what food webs show.  - Combine food chains to form a food web.  Extend  - Explain the link between food chains and energy.  - Explain why a food web gives a more accurate representation of feeding relationships than a food chain. | * Food chains and food web entrance quiz * Food chain and food web assessment task. * Food chain and food web exit quiz. | Homework 1  Food chains and webs  Online support  <https://classroom.thenational.academy/lessons/food-chains-and-webs-64uk4e>  African Savanna Community Web  <https://www.nationalgeographic.org/activity/african-savanna-community-web/> | Dragonflies are efficient predators that consume hundreds of thousands of insects, locally  <https://www.britishecologicalsociety.org/dragonflies-are-efficient-predators-that-consume-hundreds-of-thousands-of-insects-locally/> |  | * Ecosystems entrance Quiz * [Food chain and food web PPT](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\9.1%20Interdependnce\9.1.1%20Food%20Chains%20and%20Food%20Webs\9.1.1%20Food%20Chains%20and%20Food%20webs.pptx) * [Food chains Food Webs PPT2 (OA)](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Food%20Chains%20and%20Webs%201.pptx) * [Food chains and food webs assessment task word.](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Assessments\Food%20chains%20and%20food%20webs%20assessment%20task.docx) * [Food chains assessment task PPT](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\9.1%20Interdependnce\Ecosystems%20Formative%20Assessment.pptx) * [Food chains and food webs assessment task answers.](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Assessments\Student%20Book%20Answers.pdf) * [Activity: Predator–prey relationships](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\9.1%20Interdependnce\9.1.1%20Food%20Chains%20and%20Food%20Webs\Food%20Web%20Student%20activity.pdf) * [Food chains and food web exit quiz](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Assessments\Food%20Chains%20and%20Webs%20exit%20quiz.docx) * [Ecosystems Knowledge organiser](file:///T:\Science\Key%20Stage%203\Activate%20Year%207%20Resources\Knowledge%20organisers\Knowledge%20organisers%201%20combined%20PDF.pdf) * [Ecosystem student book (optional)](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Year%207%20Science\Ecosystems%201\Ecosystems%20combined%20PDF%20student%20book.pdf) * [Homework Booklet](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Homework\Big%20Idea%20Ecosystems%20-%20Topic%201%20Interdependence%20Homework.pdf) |
| 9.1.2: Disruptions to food chains and webs  This lesson looks at interdependence and how changes in the environment can affect different organisms within a food web, including the process of bioaccumulation  (1 lesson). | Know  - State that one population of organisms can affect another.  - State that toxic material can get into food chains.  - Present population data as a graph, and describe simple patterns shown.  Apply  - Describe the interdependence of organisms.  - Explain effects of toxic materials on a species’ population.  - Present population data as a graph to describe trends and draw conclusions.  - Explain issues with human food supplies in terms of insect pollinators.  Extend  - Explain the interdependence of organisms.  - Explain how toxic materials can accumulate in human food sources.  - Present population data as a graph, explaining trends and drawing detailed conclusions from data provided. | * Food chains and food web entrance quiz * Disruptions to food chains and webs assessment task * Disruptions to food chains and webs exit quiz. | Homework 2  Impacts on Food Webs  Online support  oak academy  <https://classroom.thenational.academy/lessons/impacts-on-food-webs-69j3et> | New study shows insecticides used on flowering crops have major impacts on bumblebees.  <https://www.britishecologicalsociety.org/new-study-shows-insecticides-used-on-flowering-crops-have-major-impacts-on-bumblebees/> |  | * [Food chains entrance Quiz](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Assessments\Food%20Chains%20and%20Webs%20entrance%20quiz.docx) * [Disruptions to food chains and webs PPT](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\9.1%20Interdependnce\9.1.2%20Distruption%20to%20Food%20Chains%20and%20Webs\9.1.2%20Disruption%20to%20Food%20Chains.pptx) * [Activity: Changes in population](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\9.1%20Interdependnce\9.1.2%20Distruption%20to%20Food%20Chains%20and%20Webs\Changes%20in%20Population%20Student%20Sheet.pdf) * [Graph template](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\9.1%20Interdependnce\9.1.2%20Distruption%20to%20Food%20Chains%20and%20Webs\Graph%20Template%20(student%20support).pdf) * [What killed the herons](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\9.1%20Interdependnce\9.1.2%20Distruption%20to%20Food%20Chains%20and%20Webs\Info%20Sheet%20-%20What%20Killed%20the%20Herons.pdf) * [Disruption to food chains and webs assessment task](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Assessments\Disruption%20to%20food%20chains%20and%20webs%20assessment%20task.docx) * [Disruptions to food chains and webs exit quiz](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Assessments\Disruption%20to%20%20Food%20chains%20and%20Webs%20exit%20quiz.docx) * [Ecosystems Knowledge organiser](file:///T:\Science\Key%20Stage%203\Activate%20Year%207%20Resources\Knowledge%20organisers\Knowledge%20organisers%201%20combined%20PDF.pdf) * [Ecosystem student book (optional)](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Year%207%20Science\Ecosystems%201\Ecosystems%20combined%20PDF%20student%20book.pdf) * [Homework Booklet](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Homework\Big%20Idea%20Ecosystems%20-%20Topic%201%20Interdependence%20Homework.pdf) |
| 9.1.3: Ecosystems  This lesson looks how organisms co-exist in ecosystems and how to use quadrats to carry out random sampling, how to write a method and calculating means.  (2 lessons) | Know  - State that different organisms can co-exist.  - State the definition of the term niche.  - Record data from sampling an ecosystem.  Apply  - Describe how different organisms co-exist within an ecosystem.  - Identify niches within an ecosystem.  - Use quadrats to take measurements in an ecosystem, describing trends observed.  Extend  - Explain why different organisms are needed in an ecosystem.  - Explain why different organisms within the same ecosystem have different niches.  - Use quadrats and transects to take unbiased measurements in an ecosystem, describing trends observed in data. | * Disruptions to food chains and webs entrance quiz * Ecosystems assessment task * Ecosystems exit quiz | Homework 3  Estimating Populations  Online support  oak academy  <https://classroom.thenational.academy/lessons/estimating-populations-6gu3cc> | Ecosystem  <https://www.nationalgeographic.org/encyclopedia/ecosystem/> |  | * [Disruptions to food chains and webs entrance Quiz](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Assessments\Disruption%20to%20%20Food%20chains%20and%20Webs%20entrance%20%20quiz.docx) * [Ecosystems PPT](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\9.1%20Interdependnce\9.1.3%20Ecosystems\9.1.3%20Ecosystems.pptx) * [Practical Investigating the distribution of a plant](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\9.1%20Interdependnce\9.1.3%20Ecosystems\Sampling%20Student%20sheet.pdf) * [Results table](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\9.1%20Interdependnce\9.1.3%20Ecosystems\Results%20table.pdf) * [Field cut out sheet](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\9.1%20Interdependnce\9.1.3%20Ecosystems\Daisy%20Field%20and%20Quadrat%20Cut%20Out.pptx) * [Ecosystems exit quiz](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Assessments\Ecosystem%20exit%20quiz.docx) * [Ecosystems Knowledge organiser](file:///T:\Science\Key%20Stage%203\Activate%20Year%207%20Resources\Knowledge%20organisers\Knowledge%20organisers%201%20combined%20PDF.pdf) * [Ecosystem student book (optional)](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Year%207%20Science\Ecosystems%201\Ecosystems%20combined%20PDF%20student%20book.pdf)   [Homework Booklet](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Homework\Big%20Idea%20Ecosystems%20-%20Topic%201%20Interdependence%20Homework.pdf) |
| 9.1.4: Competition  This lesson looks at simple predator prey relationships and the resources that plants and animals compete for.  (1 lesson) | Know  - State some resources that plants and animals compete for.  - Interpret secondary data to describe simple predator–prey relationships.  Apply  - Describe some resources that plants and animals compete for.  - Interpret secondary data to describe trends and draw conclusions about predator–prey relationships.  Extend  - Explain the effect of competition on the individual or the population.  - Make a deduction based on data about what caused a change in the population of a species.  - Suggest what might happen when an unfamiliar species is introduced into a food web. | * Ecosystems entrance quiz * Competition assessment task * Competition exit quiz | Homework 4  Interdependence topic review.  Online support  oak academy  <https://classroom.thenational.academy/lessons/revision-part-1-68w30d> | How European Rabbits Took over Australia  <https://www.nationalgeographic.org/article/how-european-rabbits-took-over-australia/>  Limiting Factors  <https://www.nationalgeographic.org/encyclopedia/limiting-factors/> |  | * [Ecosystems entrance Quiz](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Assessments\Ecosystem%20Entrance%20Quiz.docx) * [Competition PPT](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\9.1%20Interdependnce\9.1.4%20Competition\9.1.4%20Competition.pptx) * [Activity: Predator–prey relationships](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\9.1%20Interdependnce\9.1.4%20Competition\Predator%20Prey%20Student%20Sheet.pdf) * Competition web exit quiz * [Ecosystems Knowledge organiser](file:///T:\Science\Key%20Stage%203\Activate%20Year%207%20Resources\Knowledge%20organisers\Knowledge%20organisers%201%20combined%20PDF.pdf) * [Ecosystem student book (optional)](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Year%207%20Science\Ecosystems%201\Ecosystems%20combined%20PDF%20student%20book.pdf)   [Homework Booklet](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Homework\Big%20Idea%20Ecosystems%20-%20Topic%201%20Interdependence%20Homework.pdf) |
|  | Interdependence checkpoint  (1 lesson) | Know   * shown that flowers contain the plant’s sexual organs * used key words correctly * shown that pollen can be carried by insects * spelt key words correctly   Apply   * identified parts of a flower and linked their structure to their function * explained why seed dispersal is important * described the main steps when a plant reproduces successfully * organised ideas and information to make a poster and plan a talk   Extend   * used precise scientific terms and standard English in all responses * suggested how plant breeders use their knowledge of pollination to carry out selective breeding. |  |  |  |  | [Homework Booklet](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Homework\Big%20Idea%20Ecosystems%20-%20Topic%201%20Interdependence%20Homework.pdf) |
| Plant Reproduction | 9.2.1: Flowers and pollination  This lesson looks at the main parts of the flower and the process of pollination.  (1 lesson) | Know  - Name the parts of a flower.  - State what is meant by pollination.  - Name two methods of pollination.  - Follow instructions to dissect a flower.  Apply  - Identify the main structures in a flower and link their structure to their function.  - Describe the process of pollination.  - Describe the differences between wind- and insect– pollinated plants.  - Use appropriate techniques to dissect a flower into its main parts.  Extend  - Explain how the structures of the flower are adapted to their function.  - Suggest how plant breeders use knowledge of pollination to carry out selective breeding.  - Explain the processes of wind and insect pollination, comparing the similarities and differences between the two.  - Record detailed observations from a flower dissection. | * Competition entrance quiz * Flowers and pollination assessment task * Flowers and pollination exit quiz | Homework 1  Plant reproduction  <https://classroom.thenational.academy/lessons/plant-reproduction-6ngkgd> |  |  | * Competition entrance quiz * [Flowers and pollination assessment task](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Assessments\Ecosystems%20%20Exit%20Quiz%20whole%20topic.docx) * Practical: Flower dissection * Flowers and pollination exit quiz * [Ecosystems Knowledge organiser](file:///T:\Science\Key%20Stage%203\Activate%20Year%207%20Resources\Knowledge%20organisers\Knowledge%20organisers%201%20combined%20PDF.pdf) * [Ecosystem student book (optional)](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Year%207%20Science\Ecosystems%201\Ecosystems%20combined%20PDF%20student%20book.pdf) * [**Homework Booklet**](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Homework\Big%20Idea%20Ecosystems%20-%20Topic%202%20Plant%20Reproduction.pdf) |
| 9.2.2: Fertilisation and germination  This lesson discusses the mechanisms of fertilisation; seed formation in plants and the condition needed for germination.  (2 lessons) | Know  - State what is meant by fertilisation in plants.  - State what seeds and fruit are.  - Make and record observations of germination.  Apply  - Describe the process of fertilisation in plants.  - Describe how seeds and fruits are formed.  - Make and record observations in a table with clear headings and units, using data to calculate percentage germination.  Extend  - Explain the process of fertilisation in plants, explaining the role of each of the parts involved in the process.  - Explain how the germination of seeds occurs.  - Make and record observations in a table, using data to calculate percentage germination, evaluating experimental procedure. | * Flowers and pollination entrance quiz * Fertilisation and germination assessment task * Fertilisation and germination exit quiz | Homework 2  Seed formation and dispersal  <https://classroom.thenational.academy/lessons/seed-formation-and-dispersal-cmvp4e> | Why plants eat faeces when they could eat flesh?  <https://www.britishecologicalsociety.org/press-release-plants-eat-faeces-eat-flesh/> |  | * [Flowers and pollination entrance quiz](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Assessments\Flowers%20and%20pollination%20entrance%20quiz.docx) * [Fertilisation and germination PPT](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\9.2%20Plant%20Reproduction\9.2.2%20Fertilisation%20and%20Germination\9.2.2%20Fertilisation%20and%20Germination.pptx) * [Practical Successful seeds](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\9.2%20Plant%20Reproduction\9.2.2%20Fertilisation%20and%20Germination\Germination%20student%20sheet.pdf) * [Student result sheet](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\9.2%20Plant%20Reproduction\9.2.2%20Fertilisation%20and%20Germination\Student%20Results%20sheet%20(next%20lesson).pdf) * [Fertilisation and germination assessment task](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Assessments\Fertilisation%20and%20germination%20assessment%20tasks.docx) * [Fertilisation and germination exit quiz](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Assessments\Ecosystems%20%20Exit%20Quiz%20whole%20topic.docx) * [Ecosystems Knowledge organiser](file:///T:\Science\Key%20Stage%203\Activate%20Year%207%20Resources\Knowledge%20organisers\Knowledge%20organisers%201%20combined%20PDF.pdf) * [Ecosystem student book (optional)](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Year%207%20Science\Ecosystems%201\Ecosystems%20combined%20PDF%20student%20book.pdf) * [**Homework Booklet**](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Homework\Big%20Idea%20Ecosystems%20-%20Topic%202%20Plant%20Reproduction.pdf) |
| 9.2.3: Seed dispersal  This lesson looks at how seed dispersal is important for both the seedling and parent plant. Students will also investigate seed dispersal, with a focus on the different variables that affect seed dispersal.  (1 lesson) | **Know**  - State what is meant by seed dispersal.  - Name the methods of seed dispersal.  - Plan a simple experiment, stating the variables, when given a hypothesis.  **Apply**  - Describe methods seed dispersal, and use the features of seeds and fruit to explain how they are adapted to their method.  - Explain why seed dispersal is important to survival of the parent plant and its offspring.  - Plan a simple experiment to test one hypothesis about seed dispersal, identifying a range of variables.  **Extend**  - Explain how the adaptations of seeds aid dispersal.  - Develop an argument why a particular plant structure increases the likelihood of successful production of offspring.  - Plan and design an experiment to test a hypothesis about seed dispersal, clearly explaining all the variables involved. | Fertilisation and germination entrance quiz  Seed dispersal assessment task  Seed dispersal exit quiz | Homework 3  Seed dispersal <https://classroom.thenational.academy/lessons/practical-seed-dispersal-6xh6ce> |  |  | * [Flowers and pollination entrance quiz](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Assessments\Flowers%20and%20pollination%20entrance%20quiz.docx) * [Seed dispersal PPT](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\9.2%20Plant%20Reproduction\9.2.3%20Seed%20Dispersal\9.2.3%20Seed%20Dispersal.pptx) * [Practical: Investigating seed dispersal](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\9.2%20Plant%20Reproduction\9.2.3%20Seed%20Dispersal\Investigating%20Seed%20Dispersal%20-%20Student%20sheet.pdf) * [Cut out for the investigation](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\9.2%20Plant%20Reproduction\9.2.3%20Seed%20Dispersal\Cut%20outs%20for%20Investigation.pdf) * [Seed dispersal assessment task](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Assessments\Seed%20dispersal%20assessment%20task.docx) * [Fertilisation and germination exit quiz](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Assessments\Ecosystems%20%20Exit%20Quiz%20whole%20topic.docx) * [Ecosystems Knowledge organiser](file:///T:\Science\Key%20Stage%203\Activate%20Year%207%20Resources\Knowledge%20organisers\Knowledge%20organisers%201%20combined%20PDF.pdf) * [Ecosystem student book (optional)](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Year%207%20Science\Ecosystems%201\Ecosystems%20combined%20PDF%20student%20book.pdf) * [Homework Booklet](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Homework\Big%20Idea%20Ecosystems%20-%20Topic%202%20Plant%20Reproduction.pdf) |
| Checkpoint / progress lessons  (1 lesson) |  |  | End of Big Idea Summary / Homework questions |  |  | * [Plant reproduction entrance quiz](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Assessments\Ecosystems%20%20Exit%20Quiz%20whole%20topic.docx) * [End of Big Idea Summary / Homework questions](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Homework\Ecosystems%20End%20of%20Big%20Idea%20Questions.docx)      * [Ecosystems Knowledge organiser](file:///T:\Science\Key%20Stage%203\Activate%20Year%207%20Resources\Knowledge%20organisers\Knowledge%20organisers%201%20combined%20PDF.pdf) * [Ecosystem student book (optional)](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Year%207%20Science\Ecosystems%201\Ecosystems%20combined%20PDF%20student%20book.pdf) |
| End of Topic Test  (1 lesson) |  |  |  |  |  | * [EOTT Higher](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Assessments\End%20of%20Unit%20tests\Ecosystems%20Test%20Higher.pdf) * [EOTT Higher MS](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Assessments\End%20of%20Unit%20tests\Ecosystems%20MS%20Higher.pdf) * [EOTT Foundation](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Assessments\End%20of%20Unit%20tests\Ecosystems%20Test%20Foundation.pdf) * [EOTT Foundation MS](file:///\\asfa-fs03\StaffShared$\Science\Key%20Stage%203\Activate%20Year%207%20Resources\09%20Ecosystems\Ecosystems%201\Assessments\End%20of%20Unit%20tests\Ecosystems%20MS%20Foundation.pdf) |

