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| Year Group: 2 | Main Curriculum Area: Science | Topic Area: Plants | CC Links: Art – Flower pots |  |
| Vocabulary | observe, magnifying glass, bulb, seed, alive | | | |

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| Knowledge (for this lesson) | | <ul style="list-style-type: none"> Know that plants can grow from a seed or a bulb. Know that we can ask questions about the world and that when we observe the world to answer these questions, this is science. Know that we can use magnifying glasses to observe seeds and bulbs closely | | | | | | |
| Common misconceptions (if relevant to this lesson) | | <ul style="list-style-type: none"> seeds and bulbs are not alive as they cannot be seen to move. all plants start out as seeds | | | | | | |
| Working scientifically (if relevant to this lesson) | | <ul style="list-style-type: none"> observing closely, using simple equipment | | | | | | |
| | Enquiry Question | WALT | Activate | Teach | Practice | Apply | Reflection | Resources |
| Lesson 1 | <p>Do all plants start out as seeds?</p> <p>Are seeds and bulbs alive?</p> | <p>understand that plants can start out as seeds or bulbs.</p> <p>know that seeds and bulbs are alive.</p> | <p>Retrieval label a plant (from year 1).</p> <p>Introduce overall topic enquiry question – <i>How do plants grow?</i></p> | <p>IWB – introduce today's enquiry questions.</p> <p>Next slide - show chn images of different seeds and ask: How do the seeds look the same/different? Do all plants start out as seeds? (no, some plants might start off as bulbs). Look at image to show different examples of different seeds seeds.jpg (3508x2480) (bbci.co.uk).</p> <p>Move onto next slide showing different bulbs. Highlight that some plants start off as seeds and some start off as bulbs. How do the seeds/bulbs look the same/different?</p> <p>Do we think seeds/bulbs are alive? Show diagrams of inside a seed to show that they are alive. Explain that they are alive they are 'dormant' (KO vocab) which means 'they are sleeping'. They are waiting to be activated so they can grow.</p> <p>If time - Let's investigate outside to the year 1 area where they have been planting some different plants that have started out as seeds or bulbs. (5 mins).</p> | <p>Children to spend some time looking at different types of seeds and bulbs in the different containers.</p> <p>Explain that we are now going to use a <i>magnifying glass</i> to observe closely what a seed and bulb look like on the inside. Has anyone used a magnifying glass before?</p> <p>(Have some seeds and bulbs chopped in half ready for children to look closely at with their magnifying glasses at tables in small groups). Allow chn time to observe what they can see. Feedback.</p> <p>Leave seeds and bulbs on table for the apply section.</p> | <p>Model worksheet.</p> <p>Children to complete worksheet – draw pictures and label different seeds and bulbs– chn to draw a picture of it as a whole and then a picture of the inside of the seed and bulb.</p> | <p>Complete the 'seed or bulb' quiz at the end of the PowerPoint .</p> <p>Answer lesson enquiry question – Do all plants start out as seeds?</p> <p>Are seeds and bulbs alive?</p> | <p>Seeds and bulbs</p> <p>Magnifying glasses</p> <p>Worksheet</p> <p>Quiz on PowerPoint</p> |

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| Lesson 2 | What do seeds and bulbs need to germinate and grow well? | <p>understand that seeds and bulbs need to be buried underground in soil.</p> <p>Investigate how seeds and bulbs can germinate under correct conditions (water and warmth).</p> | <p>Send chn to tables to have a look at the KO.</p> <p>Fastest finger - Teacher say vocab word children in pairs find the word and read definition out loud. Vocab: seed, bulb, dormant and magnifying glass.</p> <p>Come to carpet. Use S2 IWB – scratch to reveal to reinforce vocab word seed and bulb.</p> | <p>Discuss about how plants are living things like humans and other animals. How can we <i>tell</i> that they are living things? Think back to Mrs Gren. Discuss how chn think plants survives – they move, grow, need food/water and air (like humans and animals).</p> <p>Look at vocab word on IWB – <i>germinate</i> – scratch reveal. Discuss how this is the first stage of growing after it is a seed/bulb. It has been activated! Say to the children that we are going to investigate in different ways what a seed/bulb needs for it to germinate.</p> <p>IWB use Discovery Dog</p> <p>Explain to the children that we are going to be scientists and investigators, so we are going to make it interesting and think about things we can change one of the conditions to see if the seed/bulb will still germinate -</p> <p>Group 1 - No light (cupboard)</p> <p>Group 2 - No water</p> <p>Group 3 No warmth (in the fridge with a torch).</p> <p>Fill in discovery dog together, leave predictions until reflection.</p> | <p>Children decide which condition they want to change from the three choices. Teacher make 3 table groups and then children go to the correct table with what condition they want to change (try and have 10 children in each group if possible). Once children are sat down in their group, tell them to find a partner in their group.</p> <p>Explain that each pair will have two pots. One pot will be ‘normal conditions and the other pot put will be the condition they have changed.</p> <p>Model to chn how to plant a seed/bulb with soil in a plastic pot.</p> <p>Teacher work way around each group to plant, label pots with the children partner names on.</p> <p>When other groups are waiting for their turn to plant with teacher then they can do the vocab sheet.</p> <p>Adaptive teaching: TA to support SEN children with planting.</p> | <p>Have a discussion with your partner.</p> <p>Do you think your seed/bulb will still germinate without water/no light/no warmth? Why?</p> <p>Fill the first section of their worksheets.</p> | <p>Complete children’s predictions part back on the Discovery Dog – what do chn think the seeds/bulbs need to germinate and grow?</p> <p>Continue enquiry question onto next lesson.</p> | <p>S2 IWB</p> <p>Pots</p> <p>Compost</p> <p>Seeds and bulbs</p> <p>Sticky labels</p> <p>Trays</p> |

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| Lesson 3 | <p>What do seeds and bulbs need to germinate and grow well?</p> <p>What do plants need to continue to survive?</p> | <p>understand the difference between germination and on-going growth.</p> <p>investigate what conditions plants need to continue to survive.</p> | <p>IWB</p> <p>Retrieval – germination definition.</p> <p>What did we do last lesson? Have a discussion to remind chn.</p> <p>Re-look at discovery dog investigation sheet.</p> | <p>Teach 1 IWB slide. Do you think plants are alive even though they aren't moving? What about in the winter, what about when they are seeds and bulbs? Scratch reveal definitions – discuss the word 'dormant' - in winter plants are dormant – normal functions are slowed down (like they are in a deep sleep).</p> <p>Remind chn that last week we all planted two pots with a seed/bulb.</p> <p>Go to practise 1.</p> <p>Teach 2 Bring children back to the carpet.</p> <p>Watch the first 20 seconds of a timelapse video of the sunflower growing healthy https://www.youtube.com/watch?v=Z-iPp6yn0hw</p> <p>Re-iterate that on-going growth is different from germination. Go back to IWB - Reveal picture of different stages of plant growth and explain this shows that plants are always growing and changing.</p> | <p>Practise 1 Let the children go back to the group with their partner at the tables. Let chn go and have a look at their seeds with the condition they have changed (no light, no warmth or no water) compare this to their controlled plant pot. What do you notice? Encourage carefully scraping away the soil from the seed/bulb.</p> <p>Practise 2 Follow up question: What conditions do you think a seedling needs to grow into a healthy, mature plant? Refer back to the video. Discuss the different conditions that chn have chosen. What is working well/not so well.</p> <p>Do you think your seed/bulb will continue to grow healthy in its condition? Why/why not? Discuss with talk partner.</p> | <p>Apply 1 Have a class discussion about whose seed/bulb has germinated. Why do we think this has happened? Did it still germinate even though it had no water/warmth/light? Write onto table. Hinge question: What does a seed or bulb need to germinate? Next slide – recap germination is (when the seed/bulb begins to grow a shoot). Children to understand that you do not need light for it to germinate as it's in the soil.</p> <p>Apply 2 Children go back into their conditioned groups.</p> <p>If a groups seed/bulb has germinated tell the children, they are going to keep their conditions the same to see if it will continue to grow to a healthy and mature plant (no light put in cupboard).</p> <p>If groups seed/bulb has not germinated, then they can use the normal conditions seed/bulb (which hopefully has germinated) and encouraging children to think about choosing a new condition to see if the seed/bulb changes its growing conditions.</p> <p>Explain to children that each group will have a controlled condition plant to keep on the windowsill (to compare in lesson 4)</p> <p>Continue observing what happens to the plants throughout the next couple of weeks.</p> | <p>Reflect Thumbs up or thumbs down.</p> <p>Do you think your seed/bulb will continue to grow in its condition? Why?</p> <p>Feedback a few opinions.</p> | <p>S3 IWB</p> <p>Planted seeds and bulbs</p> |
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| | | | | | | Scaffolding: KO out on tables. Key vocab on science display. Mixed ability groups to aid discussion. Teacher to support identified children. | | | |

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| Lesson 4 | How do healthy plants grow? | find out and describe how plants need water, light, and a suitable temperature to grow and stay healthy. | <p>Retrieval First slide - partner talk and feedback as a class to match the vocab to the picture and then definition. Address and misconceptions of any key vocab taught.</p> <p>Next slide - What did we learn last week? Refer to the table on which seeds have germinated. What did we notice? Complete the sentence together: For a seed to germinate it needs _____ and _____.</p> | <p>Teach 1 Reiterate that last week we took a condition away from our plants to observe if it impacts or stops growth. What conditions did we change?</p> <p>Verbalise some predictions from last week about if they think their plant has continue to grow/no grow and why? Or will it continue to grow healthy? Why?</p> <p>Go to Practise 1 and then Apply 1.</p> <p>Teach 2 Go onto the PDF KO. Discuss that plants need warmth, water, light to grow and stay healthy.</p> <p>Briefly discuss how plants also need space to grow healthily. Link this to children who have chosen bulbs. This might be because it takes longer for a bulb to grow compared to a seed but also due to maybe the lack of space in the plant pot? Discuss next time bulbs might need more soil to cover and possibly more room.</p> <p>Explain second part of worksheet.</p> <p>Go to hinge question.</p> | <p>Practise 1 Children go with their partners back to their condition groups to observe what has happened since last time they saw their plant.</p> <p>Go around and have a discussion on each group. What has happened to the plant that has no warmth/ no water/ no light? Has it continued to grow healthily? Why do we think this has happened?</p> <p>Practise 2 Before we go to complete the worksheet let's check our understanding.</p> <p>Hinge question: What does a plant need to grow and stay healthy?</p> <p>If children are struggling to understand this concept from the hinge question—keep them back on the carpet and teach again whilst the rest of the children are completing the worksheet.</p> <p>YC – 2L VC – 2T ED – 2P Support children with worksheets if teacher is helping identified children with understanding.</p> | <p>Apply 1 Come back together as a class on the carpet and feedback. Collect data on the table and fill in on IWB about whether the plants have grown healthy under the different conditions in your class. What have we found out? Why do we think that it has grown/ not grown?</p> <p>Apply 2 Children go back to the tables they were working at. Fill in weeks 3 and 4 diagram draw what their plant looks like exactly and then finish their sentences correctly on the back of the worksheet.</p> <p>Adapted Teaching: worksheet for SEN children. KO on tables. Plants for children to observe. Key vocab on science wall and IWB. Verbal discussion with hinge question. Teachers support identified children.</p> | <p>Refer back to the main enquiry question: How do healthy plants grow?</p> <p>What do they need to grow healthily and to continue to survive?</p> <p>Have a discussion as a class. Refer on KO and answers on worksheets.</p> | <p>S4 IWB</p> <p>Planted seeds and bulbs on tables</p> <p>Results worksheet</p> <p>KO at tables</p> |