# Unit Summary

| | Introduction (Lessons 1-2) | Cluster 1: Humans (Lessons 3-4, 7-9, 24-25) | Cluster 2: Trees (Lessons 5-6, 10-11, 16, 19-20) |
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| **Overview** | Children are introduced to the concept of cycles. They discuss cycles in their daily lives and create a life-cycle diagram for humans and several other organisms. | Children study human life-cycle stages and see how these stages repeat themselves from one generation to the next. They discuss the basis for physical and intellectual growth and track this growth over the course of the school year. | Children study a class tree. Through careful observation and measurement, they see how the class tree grows and changes during the school year. |
| **Science Content** | • All living organisms have life cycles that include being born, growing up, reproducing, and eventually, dying.<br>• Offspring tend to resemble their parents. | • Humans have a basic life cycle that includes birth, growth, reproduction, and death.<br>• Rapid physical growth is a characteristic of the human life cycle prior to adulthood.<br>• Making and strengthening connections in the brain is the basis for intellectual growth.<br>• Humans have basic survival needs, as well as intellectual and social needs. | • Scientific investigation requires careful observation, measurement, and record keeping.<br>• Deciduous trees shed their leaves in the fall, are dormant in the winter, and unfurl new leaves and flowers in the spring.<br>• Trees in temperate climates add one growth ring each year.<br>• Trees have an annual cycle within their life cycles. |
| **Science Center** | | • Create a museum with artifacts from previous generations.<br>• Create a museum with evidence of growth.<br>• "Exercise" brains with brain games and brainteasers.<br>• Look for pictures of tree houses designed to meet human needs.<br>• Post chart with children's measurements. | • Post photographs of the class with the tree.<br>• Examine tree cross sections.<br>• Observe daily changes in a cutting from the class tree.<br>• Examine cones from different trees. |
| **Family Links** | | • Prepare questions for an intergenerational interview.<br>• Share family photo albums and baby books.<br>• Compare a family member's arm span to their height.<br>• Monitor the effect of practicing a skill at home. | • Inventory the trees in their neighborhood.<br>• Identify household items derived from wood products.<br>• Bring tree cross sections from home.<br>• Identify whether inventoried trees are deciduous or evergreen. |
| **Further Science Explorations** | | • Track changes in physical strength over the school year.<br>• Monitor improvement that results from practicing a skill.<br>• Follow a "brain recipe" to approximate the brain's weight and consistency.<br>• Perform brain exercises and discuss brain fitness. | • Plant a class tree.<br>• Make paper from leaves.<br>• Measure tree circumference at various heights.<br>• Compare leaves from different trees.<br>• Look at leaf scars.<br>• Press a leaf or flower from class tree.<br>• Dissect swollen buds.<br>• Research products harvested from trees. |
| **Cross-Curricular Extensions** | **Language Arts:** Read *Charlotte's Web*.<br>**Music:** Sing songs (such as rounds) that have repeating patterns. | **Mathematics:** Perform rate of growth calculations. Estimate how much time they spend practicing a skill.<br>**Language Arts:** Write an account of a large family gathering. Write a poem describing a favorite food. Write or read stories about someone who experiences intellectual growth.<br>**Social Studies:** Discuss early human settlements.<br>**Physical Education:** Monitor a physical education skill over the year. | **Mathematics:** Create a graph of trees found in their neighborhood. Group and classify a variety of leaves.<br>**Language Arts:** Write poems or stories about the class tree. Read tree quotations and proverbs.<br>**Art:** Make a collage of tree leaves. Create class tree still life. Draw a picture of what the class tree will look like in 50 years. Identify and draw natural patterns similar to tree rings. Decorate Arbor Day posters. |

| Cluster 3: Seed to Seed (Lessons 12-13. 18-23) | Cluster 4: Butterflies (Lessons 14-15, 17, 21-22) | |
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| Children examine the life cycle of a pea plant. They look at soaked and dry seeds, plant sprouts, and study the growth of plants under different conditions. They examine a wide variety of flowers and learn how flowers grow into fruits and seeds. | Children study the life cycle of Painted Lady butterflies. They create a life-stage calendar for the butterfly. They observe, measure, and draw caterpillars, examine their chrysalises, and compare the eating behavior of caterpillars with that of the emergent butterflies. They observe butterfly mating behavior, and if conditions are right, see tiny caterpillars hatch from freshly laid eggs. | **Overview** |
| • Seeds have an embryo, stored food, and a protective coating.<br>• Seeds and plants grow best when their basic needs of light, air, and water are met.<br>• Flowers have characteristics such as smell, taste, shape, and appearance that determine the pollinators they attract.<br>• A flower's ovary becomes the fruit; the egg becomes the seed. | • Butterflies have life stages that include egg, larva, chrysalis, and adult.<br>• Metamorphosis occurs during the chrysalis stage of development.<br>• Butterflies are different in structure and behavior than caterpillars.<br>• Before butterflies die, they lay eggs and propagate another generation. | **Science Content** |
| • Monitor the germination process of soaked pea seeds in a soil-less container.<br>• Place flowers in a jar of water.<br>• Observe different types of pollen under a microscope.<br>• Dissect and examine rose hips.<br>• Examine a variety of fruits and seeds. | • Observe caterpillars change and grow.<br>• Watch caterpillars eat.<br>• Handle butterflies. | **Science Center** |
| • Start a plant at home with a family member and track its progress.<br>• Help a family member make dinner and educate them about the ingredients. | | **Family Links** |
| • Discuss ferns and mosses.<br>• Display collected seeds.<br>• Follow the life cycles of other plants.<br>• Observe stressed plants in nature.<br>• Make replicas of flowers and pollinate them.<br>• Look at the many ways that plants reproduce.<br>• Discover unusual varieties of flowers.<br>• Research plants and pollinators. | • Maintain caterpillars collected by children.<br>• Decide if a caterpillar is an insect.<br>• Discover what caterpillars eat.<br>• Discuss other animals with metamorphic life cycles.<br>• Observe butterflies pollinating plants.<br>• Examine butterfly eggs and wings under a microscope.<br>• Mount a butterfly for display. | **Further Science Explorations** |
| **Language Arts:** Write about an experience with plants. Write about a grain of pollen. Read a biography of Johnny Appleseed.<br>**Mathematics:** Measure seeds. Graph pea plant growth. Sort fruits and seeds. Create cross sections of different solids.<br>**Art:** Press flowers. Draw with flower petals. | **Mathematics:** Calculate how long butterfly life cycle stages last.<br>**Language Arts:** Read *The Very Hungry Caterpillar*. Create a drama about metamorphosis. Create a story in which they are able to metamorphose on command. Describe a time when they underwent a "metamorphosis."<br>**Art:** Create imaginary animals with metamorphic life cycles. Draw pictures of emerging or adult butterflies. | **Cross-Curricular Extensions** |