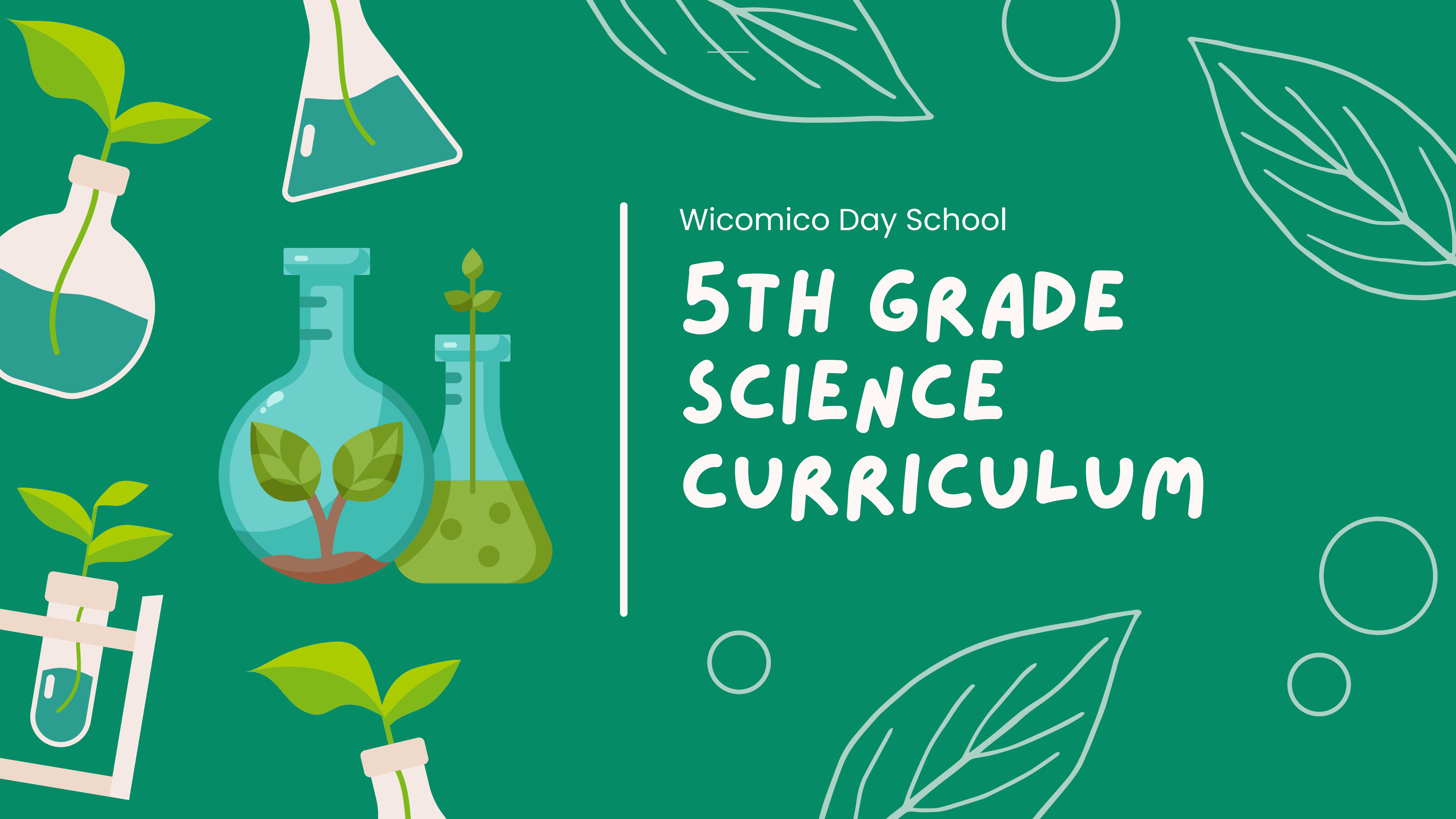




Wicomico Day School

5TH GRADE SCIENCE CURRICULUM



EXPLORING THE UNIVERSE (ASTRONOMY)

- Identify tools astronomers use to explore the universe
 - Construct a Galilean refracting telescope
 - Describe constellations and asterisms
 - Locate the asterisms the Big Dipper and the Little Dipper on a sky map
 - Identify factors that determine which stars and constellations we see
 - Locate constellations on sky maps
 - Describe and classify galaxies
 - Describe the Milky Way Galaxy
 - Identify the stages in the life cycles of stars
 - Describe the life cycles of stars
 - Identify characteristics of our solar system
 - Identify characteristics of our Sun
- 



EXPLORING THE UNIVERSE (ASTRONOMY)

- Describe the life cycles of stars
 - Identify characteristics of our solar system
 - Identify characteristics of our Sun
 - Describe the planets in our solar system
 - Compare and contrasting the planets
 - Identify characteristics of asteroids, meteoroids, dwarf planets, and comets
 - Describe the two motions of Earth
 - Identify the cause of day and night on Earth
 - Identify why the Sun, Moon, and stars appear to move across the sky
 - Identify the causes of the Earth's seasons
 - Compare the number of hours of daylight at different times of the year
 - Construct a graph to show changing hours of daylight
 - Identify the phases of the Earth's Moon
 - Identify how solar and lunar eclipses occur
- 



EXAMINING THE STRUCTURE OF MATTER (CHEMISTRY)



- Identify elements that make up matter
- Identify and interpreting information on the Periodic Table of the Elements
- Classify elements as metals, non-metals, or metalloids
- Describe properties of elements
- Describe the structure of an atom
- Identify valence electrons
- Use diagrams to represent atoms of elements
- Describe compounds
- Identify organic and inorganic compounds
- Identify elements in a chemical formula
- Identify what happens during chemical bonding
- Describe metallic bonding
- Describe ionic bonding
- Describe covalent bonding
- Identify the structural formula of a molecule





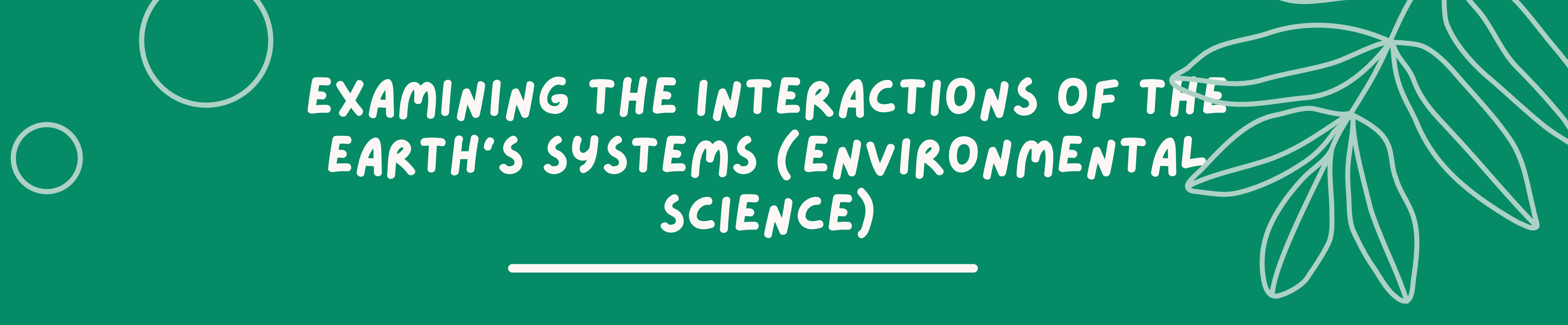
INVESTIGATING MATTER AND ITS INTERACTIONS (CHEMISTRY)

- Classify matter as a pure substance or a mixture
 - Identify mixtures as homogeneous or heterogeneous
 - Classify mixtures as solutions, colloids, or suspensions
 - Identify characteristics of solids, liquids, gases, and plasmas
 - Identify phase changes when heat is added
 - Identify phase changes when heat is removed
 - Observe and describing cohesion, surface tension, and adhesion
 - Observe and identifying physical changes
 - Identify physical properties of matter
 - Compare the viscosity of liquids
 - Conduct a viscosity experiment
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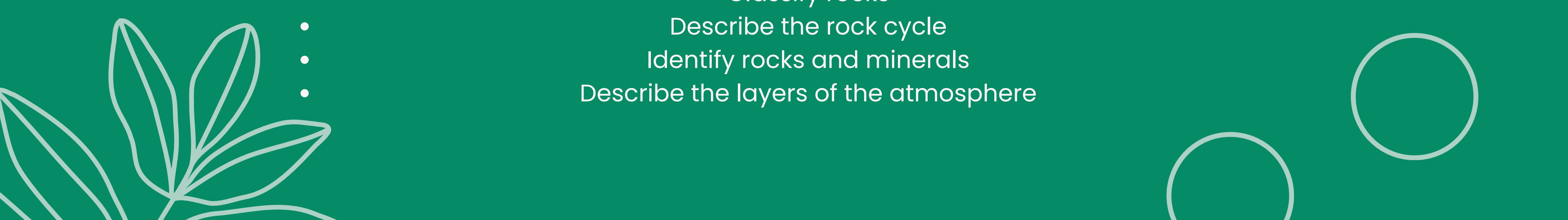


INVESTIGATING MATTER AND ITS INTERACTIONS (CHEMISTRY)

- Measure temperature
 - Measure the mass of solids and liquids
 - Measure the volume of liquids and solids
 - Measure the volume of rectangular solids
 - Describe density
 - Compare the density of metals
 - Compare the density of solids and liquids
 - Observe and identifying characteristics of chemical changes
 - Identify endothermic and exothermic chemical reactions
 - Observe and describe chemical reactions: combustion, synthesis, and decomposition
 - Describe chemical reactions: neutralization
 - Identify acids and bases
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EXAMINING THE INTERACTIONS OF THE EARTH'S SYSTEMS (ENVIRONMENTAL SCIENCE)

- Identify Earth's four major systems
 - Describe how human activities cause changes to the environment and affect Earth's systems
 - Describe the layers of the geosphere
 - Describe how the movement of tectonic plates causes changes to the geosphere
 - Describe and observing processes that change the geosphere: weathering, erosion, and deposition
 - Describe how erosion and deposition change the geosphere
 - Describe and observing fossils
 - Classify rocks
 - Describe the rock cycle
 - Identify rocks and minerals
 - Describe the layers of the atmosphere
- 



EXAMINING THE INTERACTIONS OF THE EARTH'S SYSTEMS (ENVIRONMENTAL SCIENCE)



- Describe the effects of greenhouse gases and ozone
- Describe weather conditions
- Describe characteristics of air masses
- Describe the hydrosphere
- Identify sources of saline and fresh water
- Describe the water cycle
- Identify and describing natural disasters
- Describe climatet. Identify and describing climatic regions
- Describe terrestrial biomes
- Describe freshwater and marine regions of the aquatic biome
- Describe the effects of forests on the Earth's systems
- Identify ways to protect forests





EXPLORING FORCES AND MOTION (PHYSICS)

- Describe force
 - Demonstrate how forces affect matter
 - Describe the four fundamental forces in nature
 - Identify weight as a force
 - Measure weight
 - Describe magnetism and magnetic fields
 - Describe the effect a magnet has on other substances
 - Describe an electromagnet
 - Describe the Earth's magnetism
 - Use a compass
 - Describe contact forces involving solids
 - Measure force by using a spring scale
 - Conduct a friction experiment
 - Describe contact forces involving fluids
 - Describe Newton's laws of motion
- 



INVESTIGATING TOOLS AND MACHINES (ENGINEERING)



- Describe and measure work
- Observe how sleds and rollers reduce the effort needed to do work
- Describe machines
- Identify simple machines
- Identify, describe, and compare inclined planes
- Identify and describe a wedge, screw, and wheel and axle
- Identify and describe first-class levers
- Identify and describe second-class levers
- Identify and describe third-class levers
- Describe a pulley
- Use a fixed pulley, a movable pulley, and a pulley system to lift a load
- Measure and compare the amounts of effort needed to raise a load by using a fixed pulley, a movable pulley, and a pulley system
- Calculate the amount of effort needed to raise a load and the distance the rope is pulled when a pulley or pulley system is used
- Observe and describe gears
- Describe the functions of tools
- Research the history and development of a tool
- Identify engineering occupations and Describe the role of engineers





EXAMINING THE ENDOCRINE SYSTEM (PHYSIOLOGY)

- The human body has two types of glands: duct glands (such as the salivary glands), and ductless glands, also known as endocrine glands.
 - Endocrine glands secrete (give off) chemicals called hormones. Different hormones control different body processes.
 - Pituitary gland: located at the bottom of the brain; secretes hormones that control other glands, and hormones that regulate growth
 - Thyroid gland: located below the voice box; secretes a hormone that controls the rate at which the body burns and uses food
 - Pancreas: both a duct and ductless gland; secretes a hormone called insulin that regulates how the body uses and stores sugar; when the pancreas does not produce enough insulin, a person has a sickness called diabetes (which can be controlled)
 - Adrenal glands: secrete a hormone called adrenaline, especially when a person is frightened or angry, causing rapid heartbeat and breathing
 - Puberty Glands and hormones: growth spurt, hair growth, breasts, voice change
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EXAMINING LIFE CYCLES (PHYSIOLOGY)

- Asexual reproduction
 - Example of algae
 - Vegetative reproduction: runners (for example, strawberries) and bulbs (for example, onions), growing plants from eyes, buds, leaves, roots, and stems
- Sexual reproduction by spore-bearing plants (for example, mosses and ferns)
- Sexual reproduction of non-flowering seed plants: conifers (for example, pines), male and female cones, wind pollination
- Sexual reproduction of flowering plants (for example, peas)
 - Functions of sepals and petals, stamen (male), anther, pistil (female), ovary (or ovule)
 - Process of seed and fruit production: pollen, wind, insect and bird pollination, fertilization, growth of ovary, mature fruit
 - Seed germination and plant growth: seed coat, embryo and endosperm, germination (sprouting of new plant), monocots (for example, corn) and dicots (for example, beans)



EXAMINING LIFE CYCLES (PHYSIOLOGY)



- Sexual Reproduction in Animals
 - Reproductive organs: testes (sperm) and ovaries (eggs)
 - External fertilization: spawning
 - Internal fertilization: birds, mammals
 - Development of the embryo: egg, zygote, embryo, growth in uterus, fetus, newborn
- The Human Reproductive System
 - Females: ovaries, fallopian tubes, uterus, vagina, menstruation
 - Males: testes, scrotum, penis, urethra, semen
 - Sexual reproduction: fertilization, zygote, implantation of zygote in the uterus, pregnancy, embryo, fetus, newborn

