ANGELA RUSS –AYON

DOLLAR STORE STEM!

AbridgeClub.com
a Russ InVision site
P: 562-421-1836
E: info@abridgeclub.com

WARNING: Most **Dollar Store** items are designed for children ages three and older. Constant supervision is required.

ATTENTION:

- Many items in the Dollar Stores cost more than a dollar now. $1.25 to $1.50.
- Items ordered online must be a minimum dollar amount. You cannot order a few items for $1.25.
- You will find different offerings by visiting different stores.
- Some items are seasonal – only sold in winter or summer, like pool noodles.

Many of these activities and strategies require time to put together… to get creative, be present, interact, guide, and ask open-ended questions that keep your children engaged and thinking. Put away your cell phones and iPads.

We have so many facts at our fingertips on smartphones and computers that education is no longer about memorizing facts. Entry-level jobs are disappearing due to artificial intelligence, or AI. Children must learn how to explore, evaluate information, integrate, think critically, work together, be innovative, and solve problems.

STEAM is based on educating students in five specific disciplines — science, technology, engineering, art, and mathematics. It embraces teaching skills and subjects in a way that resembles real life. It's child's play!

THE SCIENTIFIC METHOD involves hypothesizing (guessing), making predictions, and seeing if we are right, thinking logically, experimenting to test the hypothesis, and observing the results.

Young children are naturally curious and observant, and they develop an understanding of STEM concepts over time based on their life experiences and the things to which they are exposed. They build upon concepts they already know—much like a building under construction, scaffolding new information and practicing STEM skills daily. Always start with the basics, or the simplest form of something, and build on from there. Adults can't just assume children already know something.

GUIDING THE JOURNEY TO DISCOVERY…

- Provide age-appropriate tools for children to use
- Encourage children to make discoveries on their own. Give children plenty of time to process the questions you ask. Try not to talk too much! Encourage attempts and refrain from teaching. The goal is to get them thinking beyond what they are doing - beyond what they already know.
- Describe actions using scientific and mathematical terms.
- Sing songs, read stories, and display books with pictures that support interests, actions, and experiments.
- Help children make connections to real life as often as possible. Read a book and then take them to see a real pig or to the local science center to see a real rocket
- Ask open-ended questions that present an alternative to the actions children take to guide them in their decision-making process or through their next steps. If they don't know what to do next or get bored, invite them to do something a little more complex.

ASKING OPEN-ENDED QUESTIONS involves asking questions that cannot be answered with one word, such as "yes," "no," "5," or "yellow." They typically begin like this:

- "How did you decide to…?" "Why did you…?"
- "What if you… ?" "Tell me about…?"
- "How else could you…?" "Why do you think…?"
- "How are they alike/different?" "How can you tell…?"
- "What might happen if…?" "How do you/did you…?"

MATH

Preschool math is about exploring numbers, shapes, and patterns in playful ways that children can see and touch. It includes learning to count objects, compare which group has more or less, and recognize written numbers. Children explore shapes, sizes, and colors, noticing patterns and sorting things that are alike or different. They begin to understand measurement by using words like big and small, long and short, heavy and light, and practice sequencing through daily routines and stories.

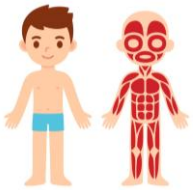
EMBED SCIENTIFIC CONCEPTS throughout each day using terms and expressions that give children more exposure to the language of science. Please do your homework on their interests so that you can introduce them to their next level of learning!

EXAMPLES OF EARTH SCIENCE

All fields of natural science related to the planet Earth – geography, geology, ecology, i.e.:

- Day and night: Moon, night sky, stars, sun, sunrise, sunset.
- Effects of the sun on different objects and people.
- Shadow chasing, measuring, and decorating with chalk and objects.
- Weather: sunny, rain, snow, hail, wind, ice, shade.
- Clouds and formations.
- Terrain: mountains, valleys, desert, grass, plants, flat lands.
- Dirt and soil exploration and discovery: mud, compost, sand, clay.
- Solids vs liquids (sand is a solid).
- Water: oceans, lakes, rivers / flow on ramps, pouring, mixing, condensation, evaporation, freezing.
- Changing seasons: temperature changes, cause and effect.
- Rocks: sedimentary, metamorphic, igneous.
- Observation of rocks: shapes, color, crystals, streaks, hardness, cleavage and cracks, luster.
- Destructive weather: tornadoes, hurricanes, floods, earthquakes.
- Taking care of the Earth: litter, recycling.
- Fossils
- Gravity

Examples of Life Science



A natural science - The study of life and organisms or living things; i.e.:

- The human body / five senses.
- Health / nutrition / germs / diseases.
- The growth of plants.
  - Growing root vegetables in a clear glass with water.
  - Plant a seed or an edible garden.
  - Measure growth
  - Examine fruits & veggies: pumpkins, oranges, shucking corn, etc.
  - Comparing leaves / pinecones / trees / bark / flowers.
  - Flowers: water, xylem, petals, symmetry, scent, etc.
- Human use of animal and plant products.
- Characteristics of animals and insects.
  - Movement of animals and insects: feet, fins, skin, wings, etc.
  - Lifecycle: Eggs, birth, and parenting.
  - Difference between animals, insects, and humans.
  - Sounds / features (hair, fur, feathers, skin, scales, etc.)
  - Habitats: underground, in trees, in water, etc.
  - Food sources and hierarchy of animals and insects (survival of the fittest).
  - Sleep and movement patterns: day, no sleep, nocturnal.
  - Survival skills: hiding, hunting, camouflage, webs, etc.
  - Wild versus tame / farm / pets.
  - Metamorphosis and physical changes over time.

Examples of Life Science – Human Body

- How body parts are used.
- Movement, heart rate, perspiration.
- Meditation and mindfulness.
- Keeping teeth and gums healthy.
- Purpose of doctors and dentists
- A healthy diet
- Parts of the body.
- Five senses.
- Motor skills.
- Balance.
- Genetics / DNA.

Examples of Physical Science

A Natural science – the study of nonliving materials - explains and predicts nature's phenomena - physics, chemistry, astronomy, math & statistics, i.e.:

- Ways to measure time (timer routine, sundial, clock, hourglass).
- Force and motion
- Cause and effect
- Magnetic attraction (WARNING!)
- Ice freezing and melting
- Sponges and water absorption
- Structures: archway, bridges, and buildings
- Magnification
- Light vs. dark, reflection, shadows
- Simple machines
  - Lift with a lever
  - Pulley
  - Wedge
  - Wheel and axle
  - Inclined plane / ramp
  - Screws, nuts, bolts
- Gravity
- Sink or float
- Static electricity
- Battery electricity
- Liquid vs solid
- Classifying / Sorting
- Weight and balance
- Temperature changes

Interesting Scientific Activities:

- Turn the lights out in the kitchen.
- Fold napkins, tissues, foil, or pipe cleaners into shapes.
- Mix food coloring in whipped cream or shaving cream.
- Make a puzzle out of a cereal box.
- Freeze flowers, seeds, leaves, etc. in ice. Observe the melting process under different conditions.
- Demonstrate and use kitchen tools: metal vs wood.
- Conduct water experiments with oil, powders, and paints.
- Conduct liquid experiments with vinegar or soda.
- Make a sensory bin using pasta, beans, rice, and seeds.
- Run water & other liquids through coffee filters.
- Squeeze water out of sponges.
- Transfer water from container to container.
- Test water absorption into sponges, napkins, foil, a baggie, etc.
- Rub crayon or wax on an egg before painting.
- Use egg cartons for sorting, pattern making, and number games.
- Make homemade Play-Doh.
- Thread pipe cleaners through a colander/ strainer.
- Make 2D & 3D shapes out of popsicle sticks, straws, or pasta
- Make a catapult out of popsicle sticks.
- Build bridges, enclosures, or frames out of popsicle sticks or foam cubes.
- Follow a recipe and cook something using kitchen tools.
- Harvest crops for dining.
- Compare fresh vs dying plants.
- Compare plant growth using sun vs. darkness, or water vs. no water.
- Use the senses to examine plants, spices, fruits, and veggies.
- Build the tallest tower or the strongest bridge.
- Make shapes and construct things out of straws, popsicle sticks, Play-Doh, cups, chopsticks, paper plates, utensils, food cans, and empty food boxes, etc.
- Identify different sounds.
- Make a windmill out of paper plates or construction paper.
- Blow and pop bubbles using dish soap.
- Blow and move objects with straws or condiment bottles.
- Scavenger Hunt with clues.
- Stuff lids into slits on boxes or plastic container tops.
- Sort different shapes and colors of pasta.
- Sift powders with a colander.
- Stamp paint or clay with cookie cutters.
- Use cookie cutters to cut shapes into sandwiches.
- Lace string through holes made in paper towel rolls.
- Lace and weave ribbon or string through oven grates or paper plates.
- Slide rubber bands or hair bands onto paper towel rolls.
- Build ramps out of paper towel rolls or recycled bottles.
- Use cups to build, sort items, and make games.
- Experiment with different light sources.

Thank you for listening,
and welcome to the CLUB!
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