S.T.E.A.M. Early Childhood Syllabus

Instructor

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Course Overview

52 science activities for each week of the year.

The term science comes from the Latin word scientia, meaning “knowledge”. Simply put when we explore our world we are gaining knowledge. The key concept in all early childhood education is we are teaching our students how to learn. The best way to do this is to learn with them by exploring questions we don’t know the answers to.

This simple outline is based on three principals.

- All students need and deserve access to all knowledge in all disciplines.

- We will not limit our search for knowledge based on resources, because we have the best resource available to us, the child’s imagination.

- Waiting to learn something before we teach us limits what our students learn and points our students down a narrow path. Learn with your students, take notes, and follow their interests.

Course Materials

The materials are limited to things found around us. This allows us to teach important concepts without having to buy new things.

- Tennis Ball
- Plants found out side
- Rocks (found outside)
- You get the idea

Resources

- www.SuperScienceFl.com

Course Schedule - Year Over View

The Whole Year	Subject
Nature of Science	Learn the scientific Method to apply all year
Earth Space	Explore Rocks, Weather, the Sun, Stars, and Planets
Physics	The study of Matter and Energy and how they work together
Biology	The study of life from bugs to bacteria
Technology	Is anything made by people to help fulfill a need or desire

Start Here

Nature of Science	Subject	Materials
Steps to Science	The Scientific Method will be with us all throughout the year	Prints outs with the steps to the scientific method
Safety First	Look at safety equipment scientist use to be safe	Goggles, gloves, lab coat
Observation	Learn how we observe by seeing, smelling, hearing, tasting, and touching	
Quest for Questions	Walk around and ask as many questions as you can and write them down	Marker, Index Cards
Can you Guess?	Using different containers (box, bag, canisters) have the students guess what's inside	Boxes, different containers, random objects
What will happen next?	Demonstrate that we can predict what will happen next by what happened before (examples: day and night, when is lunch, when I am sleepy)	Calendar, class schedule, dry erase board
Make Bubbles	Experiment - Follow the Scientific Method to make a bubble solution using two different soaps	Two different types of soap, two of the same bowls, measuring cups, measuring spoons
What did we learn?	Talk about the bubbles and make a chart showing what bubble solutions worked best	Marker and paper

Earth Space	Subject	Materials
Rocks	Observe a number of different rocks and notice how rocks are used in our everyday lives	Different rocks
The Earth Spins	Recognize the repeating pattern of day and night	Globe (or ball to model the Earth)
The Moon	Observe that sometimes the Moon can be seen at night and sometimes during the day	Ping pong ball (any ball to be the moon) And the Moon if its available
The Sun	Learn about the sun and how important it is to life on Earth	Large ball (like a basketball) to be the sun
Air	Explore the importance of air and how we utilize it everyday	Flat beach ball
Water	Explore the importance of water and how it is used everyday	Cups
Weather	Learn about different types of weather and keep track of weather each day	Paper and markers
Star Stories	Act out and hear stories that have been told for thousands of years	Paper plates, jumbo crafts sticks, tape
Planets	Learn about the planets how they are different	Balloons, sharpie markers, (or prints of plants)
Mars	Take a good look at Mars and how we plan to travel there	Printed picture of mars
Galaxies	Learn about the Milky Way and that they are millions of galaxies	Printer picture of the Milky Way Galaxy and other types of galaxies

Physics	Subject	Materials
Play ground	A field study keep records as appropriate, such as pictorial records of investigations conducted	Balls, slide, swings, wagon, bike, camera (or pen and paper)
Tug, Drop, Jump,	See how much force it takes to move objects while learning objects don't move on their own	Heavy objects (gallon of water) light objects (2oz portion cup with water)
slow and fast	Use different objects to demonstrate fast and slow. Before moving each object ask the students to make a hypothesis if it will go fast or slow.	timer
Gravity	Use a scale to measure the weight of each object and write the numbers on the board.	Weight scale
Magnets	Play with magnets and talk about what they appear to do	Magnets
Things that Fly	Think about all the things that fly and discuss what makes it so they can fly	Paper
Sink and float	Use a ball of clay to demonstrate that the same object can sink or float depending on how it's formed	Clay, container of water
It's still paper	Physical Changes, We will be cutting, tearing, crumpling, smashing, or rolling to try and make it not paper, but it's still paper	Paper
Electricity	Show the students a plug and ask them how it works. Learn what uses electrical energy to work.	Three prong plug
Sound Energy	Observe that things that make sound vibrate and sound can make things move	String, musical instruments, Jumbo Craft Sticks, rubber bands, paper
Light Energy	Explore light, color, and rainbows	CDs or DVDs, hose or spray bottle, sunlight

Biology	Subject	Materials
The Clean Up	Sort objects by observable properties, such as size, shape, color, temperature (hot or cold), weight (heavy or light) and texture	Stuff in your room
Living and Nonliving	Make a Chart: Living and Nonliving things - Recognize the difference between living and nonliving things and elaborate on how living things need nonliving things to survive like air, water, earth	Paper, pencils, clip boards, (dry erase markers and boards)
What Animal Am I	Game of 20 questions where students have pictures of animals on their back and the only way to find out what animal they are is by asking the class yes or no questions	Paper, Markers, Tape
Animated Animals	Recognize that various books and media portray animals and plants with characteristics and behaviors they do not have in real life	Images of real animals and images of the same animals as cartoons
Plants and Animals	Observe plants and animals, describe how they are alike and how they are different in the way they look and in the things they do	Paper, Markers
Grow a plant	Learn about plant needs while taking care of your plant	Seeds, cotton balls, rubber glove
Leaf and Light	Do plants need light? Prove it put tinfoil over a leaf outside and check on it each day	Tinfoil
My Body	Understand the different between a bone and a muscle and learn that we have different body systems with different organs	
Food Chain	Discuss how some living things can make their own food and others need to get energy from other living things	Styrofoam cups, markers, (or paper, tape)
Nutrition	Choosemyplate.gov	Paper platers, grocery store coupon book
Toy Designer	Draw and discuss toys and develop new toys based on the best parts of the toys reviewed	Toys, pencil, paper

Technology	**Subject**	Materials
Spoon	I have a technology hidden in my pocket, can you guess what it is? Talk about what a technology is, and show them the spoon. Talk about the difference between hi and low tech.	Plastic spoon
Washed away	Look around outside for something that has been washer away or is changing due to weather, can you make something to stop it?	
Build a bridge	Can you build a bridge out of paper? How strong can it be?	Paper, two chairs
Sensors and senses	Compare robot sensors to human senses	Picture of a robot (or drawing)
Make a Game	Use paper and crayons to make a board game	Paper, Crayons, dice (Large dice are best)
Play your game	Play your game and make changes to make it better	Completed game
Share your game	Have parents, other classes, teachers play your game and tell you how they liked it and if we can make it better	Completed game
Simple machines around us	Show pictures of pullies, levers, wheels, screws, wedges, and ramps. Go on a search to find these machines around the school. (Doors are levers, Scissors have levers and wedges.	Pullies, Levers, Wheels, Screws, Ramps, Wedges,
Straw Tower	Using only straws and tape build a tower	Straws, Tape
What the code	Show that we use codes from numbers to the alphabet to share ideas. Make a code using a red, green and blue flag. (Example: red = hop, green = lay on the ground, blue = clap)	Construction paper, Jumbo Craft Sticks, Tape
Who Job is it?	The people who make new technologies are called Engineers. Look at differ things you explore throughout the year and see if there is an engineering job that goes with it. (Example: Electrical engineer, Solar Engineer, Bioengineer)	Images of Engineers

Homework

You must apply what you saw during this experience. Add to it, change it and let it develop into your own search for knowledge.

Additional Information

There are examples curriculum for PreK to 4th on our website at:

http://superscience fl.com/staff.html