

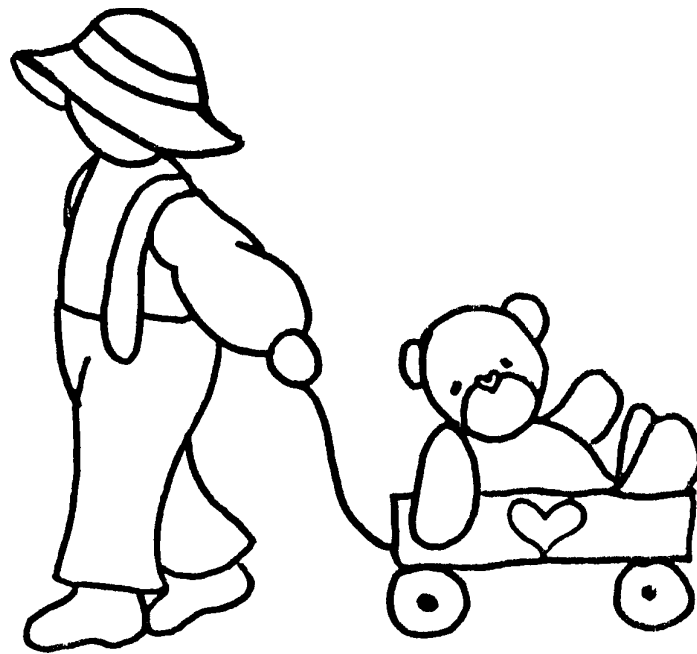


Applied Science

Our Technological World



KINDERGARTEN **BUILT ENVIRONMENT**



3 WEEKS
LESSON PLANS AND
ACTIVITIES

APPLIED SCIENCE OVERVIEW OF KINDERGARTEN

SCIENCE AND MATH

WEEK 1.

PRE: *Describing and comparing nests, birds, and eggs.*

LAB: *Describing different shapes.*

POST: *Exploring shapes in nature.*

WEEK 2.

PRE: *Distinguishing different senses.*

LAB: *Discovering how to use the senses to find new things.*

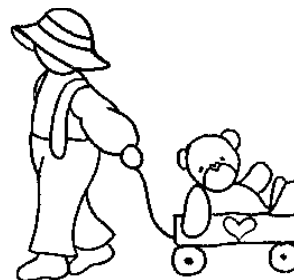
POST: *Describing how senses feel.*

WEEK 3.

PRE: *Discovering components of the microworld.*

LAB: *Comparing a microscope to a hand lens.*

POST: *Identifying tools that help us observe.*



PHYSICS

WEEK 4.

PRE: *Deriving information from an observation.*

LAB: *Discovering changes in the night sky.*

POST: *Describing interactions of the physical world.*

WEEK 5.

PRE: *Exploring magnetism.*

LAB: *Discovering which objects repel or attract each other.*

POST: *Discovering how electricity is made.*

TECHNOLOGY

WEEK 6.

PRE: *Discovering technology.*

LAB: *Exploring different simple machines.*

POST: *Exploring how machines help people work.*

WEEK 7.

PRE: *Exploring inventions.*

LAB: *Discovering how to invent.*

POST: *Exploring how inventions may not be useful.*

BUILT ENVIRONMENT

WEEK 8.

PRE: *Recognizing the difference between artificial and natural.*

LAB: *Classifying objects in the classroom.*

POST: *Exploring living requirements of an environment.*

APPLIED SCIENCES - BUILT ENVIRONMENT (K)

PRE LAB

Students use a worksheet to compare human and natural made.

OBJECTIVE:

1. Recognizing the difference between artificial and natural.
2. Exploring the requirements of being "naturally" made.

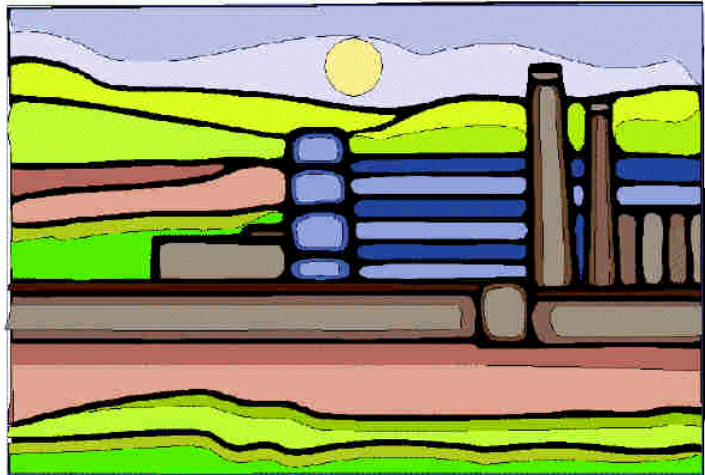
VOCABULARY:

artificial
consumer
human-made
natural

MATERIALS:

worksheet

BACKGROUND:



Students may not recognize items created from natural substances versus those created by artificial means. For instance, wood products such as paper or wooden desks are made from trees. So the material is natural, but the product itself is human created. However, plastics resulted from a chemical combination involving petroleum products and are artificially created. The petroleum products are natural but the plastics are chemically derived.

Technology today makes many artificial products that look very much like the natural ones it imitates. It may be confusing to children to separate these terms. An ant, bird, or any other animal makes a home and we call that natural. A human makes a home and that is considered artificial or human-made. What is the difference? When an organism lives within the context of the other living creatures in an area, that is natural. When organisms, like humans, control the environment to the point where it doesn't resemble its original state, it is considered artificial or a built environment created by humans.

Emphasize to your students that they control the future directions of our built environment. When they grow up, they will have positions as builders, architects, bankers, planners, geologists, politicians, and engineers who will help decide where and what is constructed in an area. Students will also become consumers, who can "demand" certain buildings.

Each person can make a difference on how they work, play, and consume products in our country. Each person influences the next generation and to understand how the environment is a part of that future is important.

PROCEDURE:

1. Using the worksheet, have students circle those items which are made by humans.

2. Discuss each item with students on what is the original material and how it was created.

3. Answers:

1. A seastar is naturally created. The five part symmetry is natural artwork.

2. A corkscrew is human-made, although the handle may be wood and the metal is derived from nature. All the raw products would have to be made in a human factory. 3. The worm created its home without any intervention of humans. 4. The glider is human-made from different fabrics, wood, and metal. 5. A tree is natural. 6. Rockets are made by humans, but the man itself is made by nature. 7. Cars are manufactured by humans, although some of the parts especially metal and rubber are derived from nature. Many parts of a car today are made of products that are synthetically derived. 8. Clouds are naturally made of water. 9. A light bulb is artificially made. Glass is derived from quartz (a mineral) or quartzite (a rock) which are natural. 10. The man is using machines to make something in a factory, this would be human-made. 11. The tools, although made of metals which occur natural, are human made. 12. The cow is nature made.

APPLIED SCIENCES - BUILT ENVIRONMENT (K) PRE

circle human-made items

1. 	2. 	3. 
4. 	5. 	6. 
7. 	8. 	9. 
10. 	11. 	12. 

APPLIED SCIENCES - BUILT ENVIRONMENT (K)

LAB

Students find human and natural made item throughout the classroom.

OBJECTIVE:

1. Discovering what is human or naturally made.
2. Classifying objects in the classroom.

VOCABULARY:

built
environment
human
natural

MATERIALS:

lab sheet

BACKGROUND:

Most of our society has been altered by humans. The clothes we wear to the food we eat. Humans have a talent to mold their environment to make it easier and more efficient. For instance, humans have legs to walk, but the car, bicycle, airplane, and boat have been invented to move our body. It is this control of our environment that makes us different than most organisms.

Many people feel that we control our environment too much. Humans sometimes don't think of the consequence of our creation. Pollution of our air and land is a direct problem caused by humans.

As our society progresses it is important for young students to see the differences of the items that we have created.

PROCEDURE:

1. In this activity, students decide if certain items are natural or human-made. Your classroom is full of human-made items. The outside of the school contains more natural items.
2. Have students cut out the pieces on the enclosed lab sheet and put their name on the back of each one.
3. Control what the students look at by placing the items in back of a margarine tub or some other container.



4. As they observe the items, the students then decide whether they think it is natural or human-made. After the students have made their decision, they place a "natural" or "human" strip in the appropriate margarine tub.

5. Discuss characteristics of items made by humans and items that are natural. Human-made objects are usually constructed for the use of people. Even flags and paper are human-made. Trees, plants, nests, rocks, and sand are examples of naturally made.

5. After students spend about 10-15 minutes deciding what is human made and what is natural, go over their discoveries. You might be surprised at what they think!

APPLIED SCIENCES - BUILT ENVIRONMENT (K) LAB

NATURAL	HUMAN
NATURAL	HUMAN
NATURAL	HUMAN
NATURAL	HUMAN
NATURAL	HUMAN
NATURAL	HUMAN
NATURAL	HUMAN
NATURAL	HUMAN

APPLIED SCIENCES - BUILT ENVIRONMENT (K)

POST LAB

Students are read books on organisms in a cities.

OBJECTIVES:

1. Exploring living requirements of an environment.
2. Observing how organisms adapt to an environment.

VOCABULARY:

built
city
environment
home

MATERIALS:

Home for a Dinosaur
by E. Curran (Troll)
City Critters Around the World
by A.G. Koss ((Price, Stern, Sloan)



BACKGROUND:

Discuss that a city is a built environment made for people and replaces the natural environment. It is a big place for people to live and is built or engineered according to their needs. The built environment includes tall buildings, theaters, railroad, airports, streets, and many other objects. Sometimes, organisms that lived in the preexisting natural environment adapt to the built environment. This activity includes two stories for the children to think about. One story is a fantasy about a dinosaur that comes to a city; the other story is about real animals that live in today's cities around the world.

PROCEDURE:

1. In *Home for a Dinosaur*, a dinosaur named Bronty visits the city and creates havoc because he is too big. Bronty doesn't fit into the city because he is too big and the city wasn't built for dinosaurs. Bronty needs a large space to live, so his environment is different.

2. After you read this story, ask students if Bronty has a right to live in the city, and if so, how can the city be made to accommodate his large size. Please reinforce that dinosaurs never lived with people.

3. Ask students if there would be any other problems that would arise. For instance, where would the dinosaur find food? Where could they go for entertainment? The students will develop their own silly questions about a dinosaur in their world, so be prepared!

4. *City Critters Around the World* is a series of poems that introduce the children to far away lands and the animals that live in those cities. Before you read the story, ask students what animals there are in their city.

5. There are many animals in today's cities in the United States. Squirrels, birds, opossum, rats, mice, spiders, insects, dogs, cats, hamsters, guinea pigs, rabbits, and fish are common to almost any city. These animals are not dependent on the city and have learned to adapt to the environment which was changed without their consent.