

SCIENCE PARK - SIMPLE MACHINES

LESSON PLAN #1 for 18-To-24 Months: Pulleys

Video Segment

The KidVision Pre-K group pulling themselves up with pulleys.

Standard

Cognitive Development and General Knowledge. A. Exploration and Discovery. 3. Initiates more complex interactions.

(Florida 2011 Early Learning & Developmental Standards for 18-To-24 Months, p.10)

Objective

Children will explore and discover.

Materials

- Gallon of Water-1/2 full
- Camera & Bulletin Board making materials
- Rope (to tie on the handle of the gallon)

Procedure

1. Watch the KidVision Pre-K field trip to the Science Park with your students.
2. At circle time, discuss KidVision Pre-K's field trip to the Science Park. Talk about when the KidVision kids were hoisting themselves up with the pulleys. What is a pulley? Pulleys are simple machines that help people lift things. They use a rope that is pulled around a wheel. A good example is how a flag is pulled up at a flag pole.
3. Take out your ½ gallon of water. Pass it around the circle and let each child lift it. Is it heavy?
4. Now try an experiment. Tie your rope around the handle of the ½ gallon. Drape the rope over the door knob of your classroom making it a pulley. Lift the gallon by pulling on the other end of the rope. Is it easier to lift?
5. At small group time sit with small groups of children near the door knob with the ½ gallon of water. Encourage them to first lift the ½ gallon with their own hands and then with the door knob pulley. Talk with them as they experiment. They are using the rope and door knob to create a simple machine, a pulley.
6. While children are engaged in the activity, watch and listen. What is each child saying and doing that demonstrates exploring and discovering? They are investigating how pulleys work. Write direct quotes on your KidVision Student Assessment. Take photos of each child participating.
7. Create a bulletin board with the chart paper chart, student quotes and photos. Title it, "Simple Machines - Pulleys". When you take the bulletin board down, put the materials in your lesson plan and student assessment portfolios.

Watch, learn, & play with KidVision Pre-K!

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LESSON PLAN #2 for 18-To-24 Months: Wheels & Axles

Video Segment

The KidVision Pre-K group turns a wheel that turns an axle that makes a big fan work.

Standard

Approaches to Learning. A. Eagerness and Curiosity. 1. Shows increased eagerness and curiosity as a learner.

(Florida 2011 Early Learning & Developmental Standards for 18-To-24 Months, p. 6)

Objective

Children will show increased eagerness and curiosity as a learner.

Materials

- Playground Wagon
- Camera & Bulletin Board making materials
- Large Toy Trucks, Cars & Trains

Procedure

1. Watch the KidVision Pre-K field trip to the Science Park with your students.
2. At circle time, discuss the Science Park Field Trip with your students. Talk about when the KidVision Kids turned the wheel, that turned the axle, that turned on the fan. This is a simple machine called a Wheel & Axle. It is a rod that is attached to a wheel or wheels to make things move. The axel is the rod.
3. Take out your playground wagon. Turn it over and look at the wheels and axle rods. Investigate how they work.
4. Now do an experiment. Ask a child to sit on the wagon upside down, the wheels are facing up. Ask another child to pull the wagon with the wheels up. Now turn the wagon over so the wheels are on the ground. Ask the same child to pull the wagon. Is it easier with wheels?" Ask children what other things have wheels that move? Cars, Trucks, Trains.
5. At small group time sit with your kids and have them each experiment with large toy trucks cars and trains. Do the wheels and axles make a difference? This simple machine, Wheels & Axels make a difference in how we live.
6. While children are engaged in the activities watch and listen. What is each child saying and doing that shows increased eagerness and curiosity as a learner? Write direct quotes on your KidVision Student Assessment. Take photos of each child participating.
7. Create a bulletin board with your chart papers, student quotes and photos. Title it, "Simple Machines – Wheels & Axles". When you take the bulletin board down, put the materials in your lesson plan and student assessment portfolios.

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SCIENCE PARK - SIMPLE MACHINES

LESSON PLAN #3 for 18-To-24 Months: Hammers

Video Segment

The KidVision Pre-K group plays tug-of-war with rope levers.

Standard

Cognitive Development and General Knowledge. B. Concept Development and Memory. 3. Initiates more complex interactions.

(Florida 2011 Early Learning & Developmental Standards for 18-To-24 Months, p.11)

Objective

Children will develop new understandings through interactions.

Materials

- Hammer, Nails, Soft Wood (block)
- Plastic hammers, golf tees, thick pieces of Styrofoam
- Camera & Bulletin Board making materials

Procedure

1. Watch the KidVision Pre-K field trip to the Science Park with your students.
2. At circle time, discuss the Science Park Field Trip. Talk about when the KidVision Pre-K group learned about levers. They were playing tug-of-war. The rope was tied in the middle to a pole. Depending on where the rope was tied, one side or the other had an advantage to win. A lever is a simple machine. It lifts things.
3. Take out your hammer, nail, and block of soft wood. Explain that levers help lift things. For example: hammer your nail into the block of wood just about half way. Now use the claw part of the hammer to lift the nail out. The claw is a lever. It pulls the nail out as the handle is pushed down.
4. At small group time sit with children. Pass out plastic hammers, golf tees and pieces of Styrofoam. Give them the opportunity to hammer the tees in with the hammer and take the tees out with its claw. Notice with them how the claw is working to take the tee out. Let them explain it to you. The claw sits on the block with the 'V' around the tee. When the hammer handle is pushed down the tee lifts up.
5. As children participate in the activity watch and listen. What is each child saying and doing that demonstrates developing new understandings through interactions? Write direct quotes on your KidVision Student Assessment. Take photos of each child participating.
6. Create a bulletin board with your chart, student quotes and photos. Title it, "Simple Machines – Hammers". When you take the bulletin board down, put the materials in your lesson plan and student assessment portfolios.

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SCIENCE PARK - SIMPLE MACHINES

LESSON PLAN #4 for 18-To-24 Months: Ball Run

Video Segment

The KidVision Pre-K group creates a ball run.

Standard

Cognitive Development and General Knowledge. C. Problem-Solving and Creative Expression. 3. Initiates more complex interactions.

(Florida 2011 Early Learning & Developmental Standards for 18-To-24 Months, p.12)

Objective

Children will begin to use trial and error for a ball run.

Materials

- Cardboard Box
- Paper Towel Rolls / Toilet Paper Rolls
- Plastic Cup
- Small balls that will fit through the rolls
- Large balls that will not fit through rolls
- Glue Gun
- Camera & Bulletin Board making materials

Procedure

1. Watch the KidVision Pre-K field trip to the Science Park with your students.
2. At circle time, discuss the Science Park Field Trip. Talk about when the KidVision Pre-K group created a giant ball run. They placed their materials so the ball moved through diagonals going down. Inclined planes are simple machines that use a diagonal position to move things. For example, a ramp and a slide are inclined planes. The ball has to be the correct size to fit.
3. Take out a paper towel roll. Then take out your ball. Ask children what is going to happen to the ball when you put it into the roll? Is the ball the right size? Demonstrate what will happen with a ball that is too large. What happened? Ask children to come up and try.
4. Take out the other materials, the cardboard box, the paper towel rolls, and the cup. Explain that your class is going to make a ball run with these materials.
5. At small group time sit with your children and position the tubes on the back of the cardboard box so that a ball will roll through the tubes and into the cup. Hot glue the tubes and the cup onto the cardboard box creating a ball run.
6. When the ball run is complete sit with children and let them experiment with different sized balls. Which ones fit and which do not?
7. While children are engaged in the activity, watch and listen. What is each child saying and doing that demonstrates they are beginning to use trial and error for the ball run? Write direct quotes on your KidVision Student Assessment. Take photos of each child participating.

Watch, learn, & play with KidVision Pre-K!

8. Create a bulletin board with student quotes and photographs. Title it, “Our Ball Run”. When you take the bulletin board down, put the materials in your lesson plan and student assessment portfolios.

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