

Study Starter Activities (Ages Birth to 5 years old)

Simple Machines

Math Activities (3)

1. Measuring/comparing with a balance (type of lever)- Use or make a balance and have children compare the weights of different items



2. Incline Plane Races- Have kiddos create their own ramps with the blocks. Use a thin strip of paper and label numbers 1-10, 1-20, or whatever numbers you want to work on recognizing. Make sure they are pretty evenly spaced out. Put the paper at the bottom of the ramp, lowest number by the ramp. Have kiddos take turns racing cars down the ramp and identifying what number their car lands at.
3. Simple Machine Sorting-
<https://www.teacherspayteachers.com/Product/Simple-machines-sorting-activity-365224>
Use website to print or create your own



Art Activities (3)

1. Ramp Drip Painting- Have the kiddos stack some blocks under one side of a tray to make a ramp. Then put paper on top and use liquid watercolors and eye droppers to paint!



2. Wheel and Axel Art- Use toy cars, trains, etc to paint a picture!
3. Make your own paper tube car- toilet paper roll, tooth picks, and bottle caps



Cooking Activity (2)

1. Apple Pie in a cup- You need graham crackers, cool whip or whipped cream, apple sauce (apples slices to if you want), cinnamon, clear cups, zip locks, rolling pins, spoons
-1st, give each kiddo a ziplock baggie with one to do graham crackers. Seal the baggie and have them try to crush the crackers using their hands. Then have them use the rolling pin (wheel and axel) and ask them which method was easier. Then have them dump the crushed crackers into the cup.
-2nd, have them use a spoon as a lever to scoop the apple sauce and put it on top of the crushed graham crackers.
-3rd, have them scoop the cool whip or spray whipped cream (with teacher help) on top.
-4th, sprinkle cinnamon on top if they would like and then enjoy!



2. Healthy Fruit Pizzas



Ingredients

- 4 medium tortilla, whole wheat
- 1/2 cup Greek yogurt, plain
- 1 teaspoon honey
- 1/2 teaspoon vanilla extract
- 3/4 tablespoon orange juice

Toppings

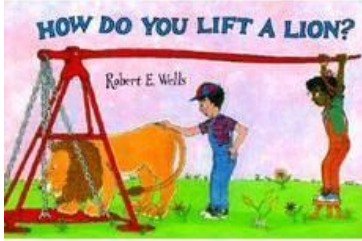
- 1/4 cup strawberries
- 1/4 cup kiwi
- 1/4 cup mandarin oranges, canned in juice
- 1/4 cup blackberries
- 1/4 cup grapes, green

Instructions

1. Using a small cookie cutter or drinking glass, cut circles into tortillas (the glass acts as a wedge to cut through the tortillas). Set aside.
2. In a small mixing bowl, blend together yogurt, honey, vanilla and orange juice until fully blended. Slice strawberries; peel kiwi and slice; drain oranges and slice into smaller pieces; slice blackberries and grapes into quarters.
3. Spread yogurt mixture onto tortillas and top with fruit.

Reading Activities & Book (4)

1. Book: How Do You Lift a Lion by Robert Wells



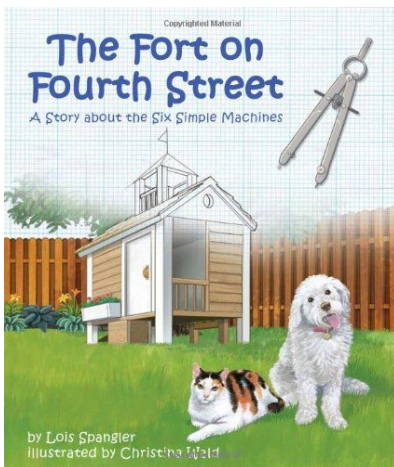
Activity: Create different ways to lift a pretend lion using popsicle sticks and other materials



3 Ways to Move a Lion
Simple Machines for Kids



2. Book: The Fort on Fourth Street by Lois Spangler



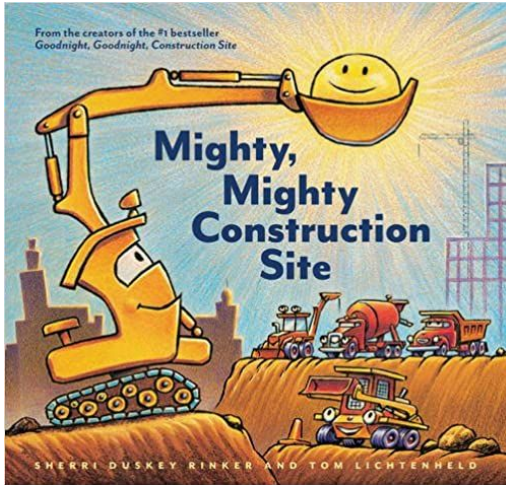
Activity: Create a fort as a class using different simple machines or split up into groups to make forts

3. Book: The Backyard Build by Jonathan Litton



Activity: The end of the book includes lots of ideas for activities!

4. Book: *Mighty Mighty Construction Site* by Sherri Duskey Rinker and Tom Lichtenheld



Activity: While reading the book, talk about the different types of simple machines within the trucks. Such as the truck on the cover is using a lever.

Science/ Social Science Activity (3)

1. Pulley testing station- Use thick poster board and mini command hooks. Set up the pulley station and let the kiddos try wrapping the string around the command hooks in different combinations to see what works best.



2. Sensory Table Pom Pom Ramps- Paper towel tubes (some cut in half vertically), pom poms, and cups



3. Ice Breaker- Freeze different toys in ice and then let kiddos experiment with wedges and screws to see what is easier to get the toys out.

Game/Fun Activity (3)

1. Making lever launchers (catapults)- For younger students, teacher should make the launcher and let kiddos experiment with them



2. Inclined Plane Marble Run- Cardboard, tape, marbles, little cups.

<https://preschooltoolkit.com/blog/marble-run-with-an-inclined-plane/>

1. Bend the side edges of the cardboard up 2 - 3 inches (5 - 8 cm). This will help prevent the marbles from rolling off the sides
2. Set one piece of cardboard **on a slant** inside the other piece of cardboard as shown in the diagram. Rest the top of the slanted cardboard on a chair or low table while you complete the project.
 - One long piece of cardboard that can be bent in the middle would probably work just as well. A bend in the middle of the run helps reduce the speed of the marble. If it rolls too quickly it is more likely to flip over the side of the track or pop out of the cup.

You can observe the speed of the marbles and **make alterations** in the degree of slant as you engage in the activity

3. Place **small disposable cups** at the bottom of the structure.
4. **Tape the two pieces of cardboard together** with masking tape. Run long strips of tape from top to bottom, extending into the small disposable cups to hold them in place.

5. Create an incline. We tried a small deacon's bench which is 15.5 inches (40 cm) high. We also tried a low stool which is 11 inches (28 cm) high. The lower height reduced the speed of the marbles, allowing them to settle into the cups without popping back out.



3. Build your own pulley system- Use Toilet paper tubes, paper towel tubes, pencils, ribbon spools, etc and let kiddos work to build their own pulley system. You may need to demonstrate some ways of making pulleys.



Outdoor Activity (3)

1. Lifting with Levers- Create your own large levers outside. Put various outdoor objects on one side and have kiddos try to use the lever to lift it.



2. Outdoor pulley machines- Make a pulley that you can hang over a tree or over a climber and let kiddos practice lifting different outdoor items with the pulley



3. Learning Letters with a rope pulley- Hang a bucket from a rope and put it around a climber or tree. Use magnetic letters and put them on the ground under the bucket. Call out a letter and have the kiddo put that letter in the bucket and pull it up.



4. Inclined Planes and Gravity Experiment-
https://buggyandbuddy.com/playground-science-kids-exploring-ramps-friction-slide/?utm_medium=social&utm_source=pinterest&utm_campaign=tailwind_tribes&utm_content=tribes



1. Gather materials to roll down the slide.
2. Climb up the slide with your items. Have a partner near the bottom of the slide with a stopwatch or timer.
3. Time how long it takes the first item to get from the top of the slide to the bottom. Do this with the other items. *Why do you think the amount of time is different for each item? How long do you think it will take you yourself to get down the slide? What about your friend or parent?*

What's Going On?

Gravity is pulling the items down the slide, but there's another element of physics in play- friction (or resistance). The force of friction results from two things rubbing against each other- like a pinecone and the slide. Friction works against gravity to slow items as they go down the slide. Each item going down the slide creates a different amount of friction (depending on many variables) to affect its speed.