

Month: _____ Month 1 _____

[Concept: Effort and making things easier] Week 1: Creating Ramps

What know about ramps, what is a ramp
Pictures of ramps—hunt for ramps (where are they located?)
Creating ramps at table experience (blocks, cardboard) (open-ended)

[Concept: Effort and making things easier] Week 2: Friction

Compare/contrast
Surface rubbings, how affect each other
Friction: add felt, sandpaper, carpet to ramps; how speed is impacted
Sliding vs. rolling: sand paper, cardboard, felt, wood, ribbed wood, ice cubes, cars, balls, cookie sheets, use real hills, outside gym, toy cards
Make predictions: students predict which surface will not let object roll
Tools for measuring: measuring tape

[Concept: Effort and making things easier] Week 3: Pushing/Pulling

Force: wagon or wheelchair push and pull
Row, row, row boat
Using a dolly to move something heavy

[Concept: Effort and making things easier] Week 4: Motion: Manipulation

Motion and manipulation: changing height
Position of object
Velocity, how it changes with pitch of ramp
Focus on “up” how do things go up a hill or ramp
What you can use to change the height
Train Tracks: up and down, using only the arch/ramp pieces
Slide: ramp, pushing up and down slide

Month: _____ Month 2 _____

[Concept: Levers] Week 1: Catapults

Catapults: spoons, tongue depressors, rubber bands, cylinder block, tape
Different weighted materials (pompoms, marbles)
Same amount of effort, size of load matters (block won't go as far as a pompom)
Measure if they move fulcrum away from the load to see if it goes further
Vocab: fulcrum, load, effort

[Concept: Levers] Week 2: Fulcrum

Moving fulcrum to see how changes effort
Lifting heavier objects, how levers make work easier (paint can opener)
Lift heavy objects vs. light objects: stuffed animals, box of blocks, buckets of dirt, help you do work, paint cans, long piece of wood
What works to make a lever: cardboard, blocks, screw driver

[Concept: Levers] Week 3: More Complex Levers

More complex levers: scissors, staplers, bats, arm
Explore with materials, go on lever hunt

[Concept: Levers] Week 4: What works best to create a lever

Cardboard, wood blocks
Other Levers: hammer to take out plastic golf tees, stapler, pliers, shovel, teeter totter, scissors, door handle, broom, mop, hockey stick, bat
Other notes: manipulate position and materials; lever to open paint can to make work easier

Month: ____ Month 3 _____

[Concept: Wheels] Week 1: What is a wheel

Collect objects or pictures in the classroom that have wheels.
Discuss why the wheels on the object makes work easier
Experiment with crayons and crayon box: two experiments,
pulling a book back across the floor, then using a scooter board
to pull the book bag.

[Concept: Wheels] Week 2: Levers, Axles, Rotation

Take apart a hot wheels car
Look at a variety of wheels, different sizes

[Concept: Wheels] Week 3: Model of a wheel

Make their own model of a wheel, include the parts
Give students options of different shapes to test

[Concept: Wheels] Week 4: Different uses of a wheel

Incorporating class-made model with wheels to help make daily
tasks easier

Books: simple machines by Dana Meachen Rau
Hauling a Pumpkin by Mari Schuh

Month: _____ Month 4 _____

[Concept: Pulleys] Week 1: What is a pulley

- Dictate what students think a pulley is
- KWL
- Research, video, document initial ideas and knowledge
- Draw a picture of what a pulley looks like
- Make connections to other simple machines like wheels.

[Concept: Pulleys] Week 2: Initial Pulley Materials Exploration

- Give materials to students to create pulleys at the table
- Explore with rolling pin, spool, toilet paper rolls, etc.
- Add pictures of pulleys to see if student tinkering changes

[Concept: Pulleys] Week 3: Creating Pulleys

- Create a pulley on the climber
- Create Lego zip line
- Experiment with the flagpole
- Add clothesline to dramatic play area

[Concept: Pulleys] Week 4: Pulley Challenge

- Give students a challenge/problem to move doll from one place to another
- Draw plan first of what pulley looks like
- Create a list of materials that they will need
- Build Pulley
- Test and revise plans