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| <b>Subject</b><br>Integrative STEM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>Grade Level</b><br>Preschool-5 |
| <p><b>PA Core Standards (#s and written descriptions)</b></p> <p><b>PA Learning Standards for Early Childhood (constructing, organizing, and applying knowledge)</b></p> <p><b>Math:</b></p> <ul style="list-style-type: none"> <li>● <b>CC.2.1.PREK.A.2:</b> Count to tell the number of objects.</li> <li>● <b>2.4.PK.A:</b> Describe the process (es) (e.g., think aloud) related to problem solving situations.</li> <li>● <b>CC.2.3.PREK.A.1:</b> Identify and describe shapes.</li> <li>● <b>CC.2.3.PREK.A.2:</b> Analyze, compare, create, and compose shapes.</li> <li>● <b>CC.2.4.PREK.A.1:</b> Describe and compare measurable attributes of length and weight of everyday objects.</li> </ul> <p><b>Reading, Writing, Speaking, and Listening PA Standards</b></p> <ul style="list-style-type: none"> <li>● 1.4.PK.A: Write, dictate or illustrate to convey ideas for a specific purpose.</li> <li>● 1.4 PK.B: With prompting and support, draw/ dictate about one specific topic.</li> <li>● 1.4.PK.B: Write, dictate, or illustrate to communicate information.</li> <li>● 1.6.PK.A: Listen attentively and respond in conversation.</li> <li>● 1.6.PK.B: Speak in simple sentences. Share experiences when asked.</li> </ul> |                                   |
| <p><b>Objectives:</b></p> <ul style="list-style-type: none"> <li>● students will be able to construct a lever out of everyday materials provided</li> <li>● students will be able to figure out where to put a fulcrum in a lever to make the lever launch an object farthest</li> <li>● all students will be able to correctly draw a lever in their “Simple Machines” flipbook at the end of the lesson</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                   |
| <p><b>Materials:</b></p> <ul style="list-style-type: none"> <li>● supplies to build a lever (varies depending on activity teacher chooses-see body of lesson)</li> <li>● book: <i>Scoop, Seesaw, and Raise</i> by Michael Dahl</li> <li>● “Simple Machines” flipbook</li> <li>● crayons</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                   |
| <p><b>Lesson Activator (Set Purpose)</b></p> <ul style="list-style-type: none"> <li>● teacher reads class book <u>Levers in Action</u></li> <li>● asks comprehension questions throughout</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                   |

### Body of Lesson

Teacher has class do a hands on activity to build and use a lever. There are 3 choice depending on available supplies, student ability, and teacher preference.

1. <http://earlychildhoodscribbles.blogspot.com/2013/02/exploring-machines-in-pre-school.html>
  - a. (popsicle sticks, marker lids, and pom poms)
  - b. explores different classes of lever as well
  - c. teacher builds levers beforehand
2. <http://munchkinsandmoms.com/investigating-levers-with-preschoolers/>
  - a. (plastic spoons, rubber bands, masking tape)
  - b. explores different classes of levers
  - c. teacher builds levers beforehand
3. <http://buggyandbuddy.com/science-kids-launching-ping-pong-ball-snowmen/>
  - a. (ping pong balls, wooden meter/yard stick, fulcrum (ex coffee can, brick, large wooden toy, log), small plastic cup, masking tape)
  - b. explores different classes of levers
  - c. students can build themselves
  - d. should be done outdoors or in a large open space (ex gymnasium)

### Lesson Summarizer (Closure & Wrap-Around to Purpose)

- teacher asks the class to think of other levers that they have seen
  - ex see-saw

### Formative or Summative Assessment of Student Learning

- students will draw a picture of their lever in their "Simple Machines" flipbook
- afterward the class will come back to the circle and all share the pictures that they drew
  - at this time the teacher will be able to observe what all the students drew, as well as their understanding of levers
- throughout the lesson the teacher will observe the students to make sure that they understand the lever

## References