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## Getting Started w/STEM (S/E/M+T ) Integrated Play and Lesson Planning

Your Name: Jan O'Brien

Class or Grade you teach: PreK

Name of School: St. Gilbert School

How many years have you been teaching? 37

Play or Lesson Plan Title: Inclined Planes

City and State: Grayslake, IL

District Name or #:

How long have you been using tech w/children? 2 years

<p><b>Play or Lesson Focus:</b> <b>What question(s) do you want to help children investigate?</b></p> <ul style="list-style-type: none"> <li>● Can you make a ramp that allows balls/cars to ramp?</li> <li>● Can you have the hexbug move up the ramps</li> <li>● How can you program the blubot to move up and down the ramps</li> </ul>	<ul style="list-style-type: none"> <li>■ Science</li> <li>■ Technology or Media Literacy (how to use tech or make tech)</li> <li>■ Engineering</li> <li>■ Math</li> </ul>
<p><b>Play or Lesson Objective</b></p> <ul style="list-style-type: none"> <li>○ Is this really one play or lesson plan?</li> <li>○ Or does it need to be divided into several different plans with their own objectives?</li> </ul>	<p>This is a multi step lesson plan because depending on the children's investigation of ramps will dictate the next steps in the project. I anticipate that the investigation will take several weeks to complete. At each step the children will initially have the opportunity to explore the with the materials and then move to questions, hypothesizing, experimentation, reflection and planning.</p>
<p><b>Standards your plan meets (<a href="#">STE</a>, <a href="#">NSGG</a>, <a href="#">Advanced Ed STEM Certification</a>)</b> <b>NOT NECESSARY BUT FOR SOME PROGRAMS IT IS IMPORTANT TO LIST WHAT STANDARDS YOU ARE MEETING</b></p>	

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How will you help document children's wonder and curiosity?	Video, pictures, conversation
What questions will you ask to help them go deeper in their investigation?	Can you make a ramp that is high enough for a ball to go down but not too high that it falls off? What can you do so the balls/cars stay on the carpet? Can we use the hexbugs to go up and down the ramp? What happens with them? Can you program the beebot to go up the ramp?
What STEM vocabulary and terminology do you need to introduce?	Steep, incline, angle
What language/vocabulary might be helpful for children as they describe their processes for play/work/learning? Will children need to be introduced to any new vocabulary or terms? <input type="checkbox"/> If so, when and how should you introduce these new words?	
Where and when will the learning and playing experience occur? <input type="checkbox"/> Inside or outside? <input type="checkbox"/> Will children design the space with you?	Inside on our rug area, the hallway if necessary if there is not enough room for the children to work in small groups effectively.
How much facilitation do you want to have in your play and learning experience? <input type="checkbox"/> Does the facilitation need to be with an adult? <input type="checkbox"/> Does the facilitation need be with a more experienced peer? <input type="checkbox"/> Does the facilitation need to be with an older child?	Initially I want the children to explore the materials independently. Their play will dictate when they are ready to delve deeper into the investigation. Once that happens then I will challenge them to change their design, test how high is too high and then introduce some technology into their plans. My hope is that they will understand the concept of angle and being to steep for the technology to work.
How much of your time will be technology how-to focused and how much	I have the materials for the building wooden ramps as well as

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### will be play or hands-on focused?

- What materials do you need to prep or have nearby?
- What new vocabulary has to be introduced?
- What materials can the children create or make with tech tools, [loose parts](#) or art materials?
- What type of sensory experience are you creating?

things for them to roll down. Vocabulary will include inclined planes, steep, angle, hexbug, blubot

### What materials do I need?

#### Examples include:

- tech tools
  - Tablets i.e iPads, Fire, etc.
    - apps
  - Robot or tangible tech
- laptop
- desktop computer
  - Software
  - website
- document camera
- projector
- microscope
- flashlight/headlamp/solar lantern
- Circuits
  - [Do You Have Flow? Idea book](#)
  - ProTips
    - [10 mm LEDs](#) are best for small hands
    - [3M Copper Tape](#) is worth the \$\$ it just works better as tested by Museum of Science & Industry
    - Don't forget [batteries](#)

### List or post pics of your materials here



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- robotics
- other tangible tech
- tablet stand or tripod?
- green screen materials?
- writing and notetaking?
  - do students need to draw or take notes on paper?
  - markers, pens, pencil, tablet styluses?
  - whiteboards?
- pretend play materials?
- engineering materials?
  - Ramps and/or blocks?
  - good junk/[loose parts](#)?
  - pulleys?
- measuring tools?
  - rulers, measuring tape, yarn, tape, blocks?
- natural materials?
  - found objects from nature?
- literacy materials?
  - books or [mentor texts](#), including digital mentor texts i.e. podcasts, blog posts, ebooks, digital photography?
- are the materials you are using culturally appropriate?
  - do the images reflect the diversity of the children you work with? what about gender and stereotypes? Do you need to make culturally appropriate materials?
  - are they available in several languages for dual-language learners? And do the images match the words? i.e.: if it says el gato is there a picture of a cat not ice cream?



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<p><b>What previous experience do children have with technology tools?</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> What are their digital skills?             <ul style="list-style-type: none"> <li>■ Are they in exploring stage i.e. learning the functions and how they respond?</li> <li>■ Are they in early integration stage i.e. documentation? Have they mastered the tool yet?</li> <li>■ Are they able to innovate yet? i.e. create and make or fully integrate into pretend play?</li> </ul> </li> </ul>	<p>The children are at the exploring stage with regards to using hexbugs, blubots and Ipads. After one day of exploration, they are eager to try new ways of creating and building ramps. The challenges is to provide them with enough experimentation time so when we move to the critical thinking phase they have enough background knowledge to be able to problem solve problems without getting frustrated and giving up.</p>
<p><b>What hardware and software do you currently have access to in your classroom i.e. what tech are you using?</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> What parts of the hardware and/or software do you anticipate causing your students trouble?</li> <li><input type="checkbox"/> What needs to be charged or updated before you use your tech tools with students?</li> </ul>	<p>I am not using this for my project</p>
<p><b>How much time do you think you'll need to introduce the students to the technology tool(s) and any other materials?</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Will children learn how to use the tool(s) through open exploration time or through guided practice/facilitation?</li> <li><input type="checkbox"/> What parts of the hardware and/or software do you anticipate causing your students trouble?</li> <li><input type="checkbox"/> What new tech terms do you need to introduce?</li> </ul>	<p>The children will have the ability to explore hexbugs, and blubots for several days before we move onto the next stage. Based on previous experience with a multi-age classroom the biggest challenge will be bridging the abilities and interests of my older children with the abilities of the younger children.</p>
<p><b>How much time do you think you'll need to introduce the students to the concept you want them to learn?</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> In what contexts (whole group, small group, individually) might you need to roll out specific parts of your plan?</li> </ul>	<p>Initially it will be in whole group to talk about what they might do, how they might create the ramp and then move to small groups to challenge their thinking and question their discoveries</p>

# Erikson Institute

## Technology in Early Childhood Center

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<p>Are there any students who may need additional supports, instructions, etc.?</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> How can you meet these children where they're at?</li> <li><input type="checkbox"/> Can the technology (hardware or software) be manipulated or adapted in any way to meet these needs?</li> </ul>	<p>Yes, my younger children will need more support to move beyond just playing to listening to questions and responding and challenging their thinking.</p>
<p>How can you use cooperative grouping/roles to manage the activities?</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Do I need a helper if I am working with another group of children?</li> <li><input type="checkbox"/> Do I need visual supports or a QR code that can take children to a tutorial?</li> </ul>	
<p>Will there be a parent engagement or parent education piece?</p>	<p>Parents will have the opportunity to view videos and pictures online through my website. They are able to visit the classroom to see first hand what is happening and how their children are learning using these material.</p>
<p>How will I document my students work or how will my students? How will we reflect on our work?</p>	<p>Through pictures, video and writing children's words and thoughts</p>

Describe your play or lesson plan activity so another teacher can understand what you did:

Additional Planning notes, description of play or lesson plan, pictures, links to helpful resources: