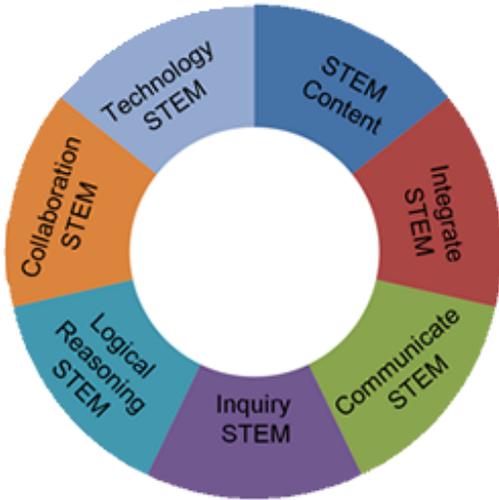


Allegany County Public Schools - STEM Centric Planning Guide



Teacher: CASSIE MALLOW
Plan Title: Let's Play!
Grade: K
Marking Period: 1
Subject: Grade K

Overview:

Students will compare toys from the past to present, looking for similarities and differences in design and function. Students will research the development of toys. Next, students will design and construct a toy. Finally, students will write an opinion piece about their toy.

Real World Problem:

Students will design and create a toy from basic materials.

Product/Prototype/Model:

Students will design and create a toy.

Content Standards

Science Content Standards for K-8

Skills And Processes

- Constructing Knowledge
- Design And Systems
- Technology

Physics

- Mechanics

Transdisciplinary Connections:

Social Studies, Writing, Reading, Math, Art, Science

Enduring Understanding:

Students develop an awareness of change over time that prepares them to think historically about life in the past. They will examine the mechanics of toys from the past and present, then create a toy that moves.

Connection to STEM Careers:

Engineer

Essential Questions

Describe the differences between toys now and in the past. How do objects move?

5E Components

Component	Suggested Activities	STEM Standards
<p>Engagements (Repeated process) Did you design an activity that...</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> captures students' attention? <input checked="" type="checkbox"/> activates students' prior knowledge? 	<p>Students will watch and discuss the power point presentation Let's Play. They will have an opportunity to make connections and develop questions about toy design and purpose.</p>	<ul style="list-style-type: none"> <input type="checkbox"/> STEM Content <input type="checkbox"/> Integrate STEM <input type="checkbox"/> Communicate STEM <input checked="" type="checkbox"/> Inquiry STEM <input type="checkbox"/>

connects to a complex question, global issue, or real world problem?

- Logical Reasoning STEM
- Collaboration STEM
- Technology STEM

Explorations

Did you design an activity that allows students to...

- analyze the science, technology, engineering, mathematics, and other disciplines as appropriate in a complex questions, global issue, or real world problem?
- apply the engineering design process, scientific investigation, and/or mathematical practices?
- select and employ technological tools that are relevant to answering a complex question, investigating a global issue, or developing solutions to a real world problem?

Students will design and construct a toy from available items. After they have explored the materials, they will illustrate and label their toy invention. Finally, students will build a toy. Emphasis should be placed on how the toy moves and its purpose. Students may use: cotton balls, pipe cleaners, plastic lids, popsicle sticks, film canisters, note cards, rubber bands, and any other material available.

- STEM Content
- Integrate STEM
- Communicate STEM
- Inquiry STEM
- Logical Reasoning STEM
- Collaboration STEM
- Technology STEM

Explanations

Did you design an activity that allows students to...?

- analyze information, data and draw conclusions?
- communicate understandings and possible solutions?

Students will model how their invention is utilized. They will explain how the toy was constructed and if the toy was given a name.

- STEM Content
- Integrate STEM
- Communicate STEM
- Inquiry STEM
- Logical Reasoning STEM
- Collaboration STEM
- Technology STEM

Extensions / Elaborations

Did you design an activity that allows students to... ?

- modify experimental procedures, prototypes, models, or solutions?
- analyze STEM careers taht relate to the learning activity?

Students will write an opinion piece about why kids would like their toy or why Toys R Us may want to sell their toy. Sentence frame may be provided. The toy_____ is_____ because.

- STEM Content
- Integrate STEM
- Communicate STEM
- Inquiry STEM
- Logical Reasoning STEM
- Collaboration STEM
- Technology STEM

Evaluations

Did you design an activity that allows students to...

- demonstrate understanding of concepts through rubric-based performance assessments?
- participate in peer review?

Students should produce an illustration of a toy then construct a toy. Students will write one opinion sentence about their toy.

- STEM Content
- Integrate STEM
- Communicate STEM
- Inquiry STEM
- Logical Reasoning STEM
- Collaboration STEM



Can you design a new toy?
Draw and label your idea below.

Name _____

