

Candle Holder

Kindergarten

Unit 4 – America: Symbols and Celebrations

Text Connections: Kwanzaa, Diwali, and Chanukah all by Trudi Strain Trueit
and El Dia de los Muertos by Mary Dodson Wade

Design Challenge Summary

Challenge: What will the students be required to do?

Many world holidays use candles during their celebrations. Design a candle-holder that will hold one tea light sized candle. It must be at least five unifix cubes tall and at least two unifix cubes wide.

Standards: What standards are addressed?

Science:

NS.1.K.1 Record observations pictorially, orally, and in writing
NS.1.K.2 Ask questions based on observations
NS.1.K.3 Conduct scientific investigations as a class and in teams
NS.1.K.4 Estimate and Measure length...using non-standard units
NS.1.K.6 Collect empirical evidence as a class
NS.1.K.7 Use age-appropriate equipment and tools in scientific investigations
PS.5.K.1 List and classify objects according to the single properties of: size, color, shape
PS.6.K.3 Demonstrate the effects of the force of *gravity* on objects

K-ETS1-2 Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

Math:

Mathematical Practice Standards
K.CC.1 Count to 100 by ones and by tens
K.MD.1 Describe and compare measureable attributes of a single object such as length or weight.

ELA:

W.K.3 Use a combination of drawing, dictating, and writing to narrate a single event or several loosely linked events, tell about the events in the order in which they occurred, and provide a reaction to what happened.
W.K.8 With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.
SL.K.1 Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups
SL.K.3 Ask and answer questions in order to seek help, get information, or clarify something that is not understood
SL.K.6 Speak audibly and express thoughts, feelings, and ideas clearly.

Result: What will students know, value, and be able to do as a result of the lesson? What's the big idea?

Know and apply the engineering design loop process.
Demonstrate ability to modify designs based on observations and predictions.
Work collaboratively on solving a problem.

Candle Holder

Assessment: What evidence will be used to determine student learning?

Did they create a working candle holder at least five unifix cubes tall?
Did they follow the design loop process?
Did they work collaboratively?

Prior Knowledge/Experiences: What prior content knowledge and skills will the students need?

Experiences with the Engineering Design Loop Process
Connections to the Mathematical Practices
Investigations/inquiry in Science
Experiences with collaborative groups
Prior knowledge of what a candle holder is

Summary/Connections: How will this design challenge connect with new/future learning, other content areas, real world experiences, etc.?

This lesson will help students develop problem solving skills and collaboration skills that are essential in succeeding in the 21st century. It will allow student the opportunity to transfer and apply skills from various content areas within one task.

Students will experience a common aspect of holidays celebrated by many different cultures.

As a summary activity, you could engage students in: **W.K.3** Use a combination of drawing, dictating, and writing to narrate a single event or several loosely linked events, tell about the events in the order in which they occurred, and provide a reaction to what happened.

Prompting questions:

What happened when you placed the candle in the holder? Did it stay in place or did it fall? (candle holder or candle)

How did the height of the candle holder affect the outcome? (Explain your reasoning)

Extensions:

Make modifications to allow for different types of candles (birthday candle vs. tea light).

Make modifications to allow for multiple candles.

Require a taller candle holder to facilitate discussion about stability.

Write about your candle holder. Why did it work or not work?

Materials/Equipment/Preparation: What materials and equipment will students need to successfully complete this design challenge?

Have the following types of materials available for each group:

Newspaper

Magazine paper

Construction paper

Copy paper

Aluminum foil

Glue and/or tape

Optional materials: pipe cleaners, popsicle sticks, etc.

Candle Holder



Many world holidays use candles during their celebrations. Design a candle-holder that will hold one tea light sized candle. It must be at least five unifix cubes tall and at least two unifix cubes wide.

Group Supplies:

Newspaper , Magazine paper, Construction paper, Copy paper, Aluminum foil, Glue and/or tape