

Packing for Freedom

2nd Grade

Unit 4 – Long Journey to Freedom

Text Connection: *Moses* by Carole Weatherford

Design Challenge Summary

Challenge: What will the students be required to do?

When the slaves escaped they had to choose what was most important to take with them. Your challenge is to design and construct a way to carry the items they've chosen to take on their journey to freedom. Your creation and belongings cannot weigh more than ____ grams.

Standards: What standards are addressed?

Science:

NS.1.2.1 Communicate observations orally, in writing and in graphic organizers
NS.1.2.2 Develop questions that guide scientific inquiry
NS.1.2.3 Conduct scientific investigations as individually and in teams
NS.1.2.5 Collect measurable empirical evidence in teams and as individuals
NS.1.2.6 Make predictions in teams and as individuals based upon empirical evidence
NS.1.2.7 Use age-appropriate equipment and tools in scientific investigations
NS.1.2.8 Apply lab safety rules as they relate to specific science lab activities
NS.1.K.4 Estimate and measure length, mass, ...

Math:

2.MD.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data...
2.OA.2 Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers.
2.NBT.5 Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

Other:

W.2.1 Write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., because, and, also) to connect opinion and reasons, and provide a concluding statement or section.
W.2.2 Write informative/explanatory texts in which they introduce a topic, use facts and definitions to develop points and provide a concluding statement or section
W.2.7 Participate in shared research and writing projects
SL.2.1 Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups
SL.2.3 Ask and answer questions about what a speaker says in order to clarify comprehension, gather additional information or deepen understanding of a topic or issue
SL.2.4 Tell a story or recount an experience with appropriate facts and relevant, descriptive details, speaking audibly in coherent sentences
SL.2.6 Produce complete sentences when appropriate to task and situation in order to provide requested detail or clarification

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.

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

Did they design and construct a creation that contained the necessary items and was within the weight limit?
Did they follow the design loop process?
Did they work collaboratively?

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

Experience with the Engineering Design Loop process
Connections to the Mathematical Practices
Investigations/inquiry in Science
Experiences with weight/mass, balances, and underground railroad

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.

As a summary activity, you could engage students in:

W.2.1 Write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., because, and, also) to connect opinion and reasons, and provide a concluding statement or section.

W.2.2 Write informative/explanatory texts in which they introduce a topic, use facts and definitions to develop points and provide a concluding statement or section

Math:

Create bar graphs showing the number of specific items packed or the weight of each pack 2.MD.10

Extension:

Place restrictions on the size of the cloth used and have students measure and cut their own pack cloth 2.MD.1

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

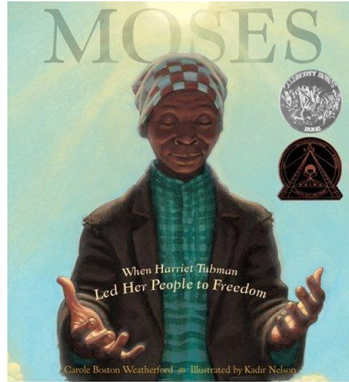
Cloth (or paper towel) in various shapes and sizes, balance, gram weights
Math Manipulatives to represent items being packed (ie. bible=wooden domino, quilt=5 snap cubes, heirloom=tangrams or pattern blocks, food=base ten units, stick=base ten rod, etc...)

ADDITIONAL INFORMATION

Possible Creations



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When the slaves escaped they had to chose what was most important to take with them. Your challenge is to design and construct a way to carry the items they've chosen to take on their journey to freedom.

Your creation and belongings cannot weigh more than _____ grams.

Group Supplies: 1 piece of cloth and all items your team decides to take.

Other supplies: balance, gram weights

SLAVES NECESSARY PACKING LIST:

Bible

Quilt

Food and water

OPTIONAL ITEMS:

You may chose how many of these items you want to include.

change of clothing

family heirloom

