

Morris Goes to School

1st Grade

Unit 1 – Alphabet Books and Children That Read Them

Text Connection: *Morris Goes to School* by B Wiseman

School Bus by Donald Crews

This design challenge is intended to introduce the engineering design loop process that will be used throughout the year.

Design Challenge Summary

Challenge: What will the students be required to do?

Morris the Moose can't count gumdrops so he decides to go to school. Help Morris (teddy bear counter) get to school using the materials provided.

Further Explanation:

Using the map and a teddy bear counter, students need to find a way to get Morris (teddy bear counter) from his house to the school without physically touching Morris (teddy bear counter). They will create a way to move him along the route using only the tools provided.

Standards: What standards are addressed?

Science:

- NS.1.1.1 Communicate observations orally, in writing and in graphic organizers
- NS.1.1.2 Ask questions based on observations
- NS.1.1.3 Conduct scientific investigations as a class and in teams
- NS.1.1.4 Estimate and measure length
- NS.1.1.5 Collect measurable empirical evidence as a class
- NS.1.1.6 Make predictions as a class and in teams based upon empirical evidence
- NS.1.1.7 Use age-appropriate equipment and tools in scientific investigations
- NS.1.1.8 Apply appropriate rules of safety related to daily activities
- NS.1.1.9 Apply lab safety rules as they relate to specific science lab activities
- PS.6.K.1 Demonstrate spatial relationships, including but not limited to: over, under, left and right
- PS.6.1.1 List orally the various ways that objects can move: straight, zigzag, back and forth, round and round, fast and slow
- PS.7.1.6 Classify materials as magnetic or nonmagnetic
- PS.7.1.7 Investigate the properties of magnets: attraction and repulsion

Math:

Mathematical Practice Standards

- *Make sense of problems and persevere in solving them
- *Construct viable arguments and critique the reasoning of others
- * Attend to precision
- * Use appropriate tools strategically

ELA:

- W.1.3 Write narratives in which they recount two or more appropriately sequenced events, include some details regarding what happened, use temporal words to signal event order, and provide some sense of closure.
- SL.1.1 Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups
- SL.1.3 Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.
- SL.1.5 Add drawings or other visual displays to descriptions when appropriate to clarify ideas, thoughts or feelings
- SL.1.6 Produce complete sentences when appropriate to task and situation.

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<p>Result: What will students know, value, and be able to do as a result of the lesson? What's the big idea?</p> <p>Know and apply the engineering design loop process. Demonstrate ability to modify designs based on observations and predictions. Work collaboratively on solving a problem.</p>
<p>Assessment: What evidence will be used to determine student learning?</p> <p>Were they able to successfully complete the challenge? Did they follow the design loop process? Did they work collaboratively?</p>
<p>Prior Knowledge/Experiences: What prior content knowledge and skills will the students need?</p> <p>Experiences with the Engineering Design Loop process Connections to the Mathematical Practices Investigations/inquiry in Science</p>
<p>Summary/Connections: How will this design challenge connect with new/future learning, other content areas, real world experiences, etc.?</p> <p>This lesson will help students develop problem solving skills and collaboration skills that are essential in succeeding in the 21st century. It will provide students the opportunity to transfer and apply skills from various content areas within one task.</p> <p>As a summary activity, you could engage students in:</p> <p>W.1.7 Participate in shared research and writing projects. <i>SEE ADDITIONAL INFORMATION PAGE</i> SL.1.1 Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups. W.1.3 Write narratives in which they recount two or more appropriately sequenced events, include some details regarding what happened, use temporal words to signal event order, and provide some sense of closure.</p>
<p>Materials/Equipment/Preparation: What materials and equipment will students need to successfully complete this design challenge?</p>
<p><u>Student materials: (per group)</u></p> <p>Manipulative to represent Morris (Bear Counter, Snap Cubes, etc.) Large paper clip Magnets Pipe Cleaners 2 - 3x5 cards Straws String Scissors 2 - 1" pieces of tape Morris Map pages</p> <p><u>Teacher materials:</u></p> <p>Engineering Design Loop Poster Engineering design bubble template W.1.7 Chart paper or butcher paper for Engineering Design Loop Poster for group presentation W.1.7 Chart paper for narrative whole group writing W.1.3</p>

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Additional Information:

Morris Map Pages:

You will need a copy of both pages of the “Morris Map” for each group. You will need to tape the two pages together where the roads meet. Start is on the right side and Finish is on the left.

You may also want to consider printing them in color, backing them on construction paper or cardstock and laminating them for extended use.

Task Cards:

Two group task cards have been included in the lesson, in the case that you need to change some of the materials for your challenge. One task card was designed for them to use as a “check sheet” for the challenge, checking which materials they wanted to use in the challenge. The other task card is more open ended (without the materials pictures).

Shared Research and Writing:

After students complete the challenge of helping Morris get to school, they will share about their experience by creating a Design Loop Poster with their group.

Students will use the Engineering Design Loop Bubble Template. They will describe what they did in each step and draw a picture relating to that step of the process. Step 1 is completed for them.

Once each of the steps has been described, the group will work together to put the steps together on a poster that they will share with the class. This can be done on pieces of chart paper or butcher paper.

Groups will then work together to share what they did during the challenge and how they followed the design loop process.

Narrative Whole Group Writing:

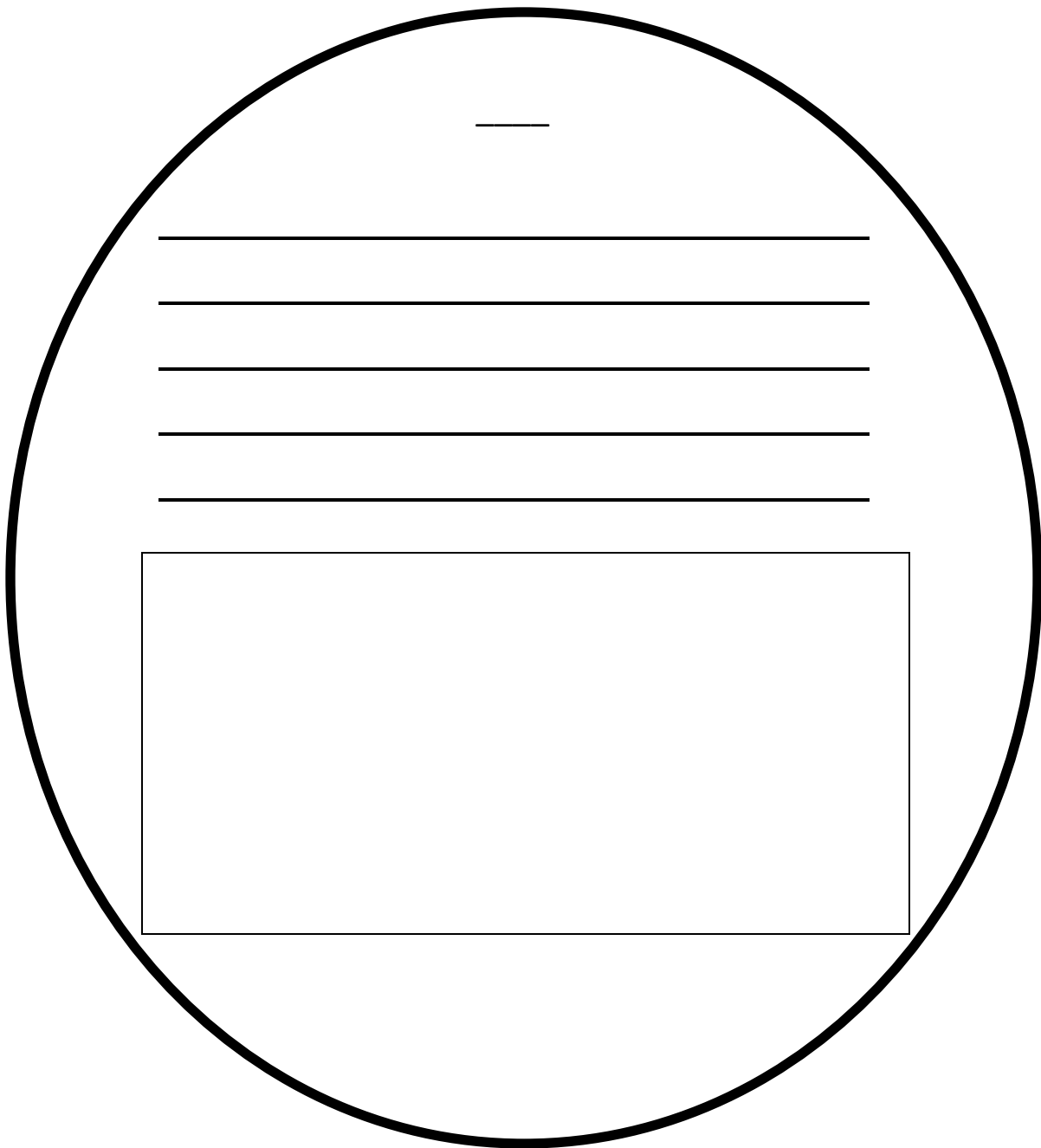
As a class, on chart paper, compose a narrative in which they recount appropriately sequenced events, include some details regarding what happened, use temporal words to signal event order, and provide some sense of closure.

1.

State the problem:

Help Morris get from his house to the school using the materials provided.





The image shows a large circle containing a template for an Engineering Design Bubble. Inside the circle, there is a horizontal line at the top, followed by five horizontal lines for text. Below these lines is a large rectangular box for a drawing or diagram.

Engineering Design Bubble Template (one copy per student)

Each student within a group will complete one of the bubbles for the Engineering Design Loop explaining what their group did for that stage of the loop. Students may have to complete more than one bubble depending on size of groups.

After each group has completed all of the bubble components they will present their poster as a whole to the class.



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FINISH



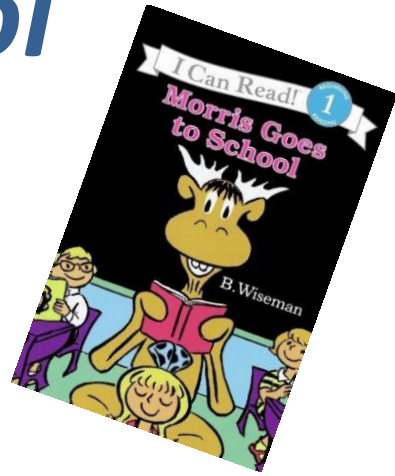
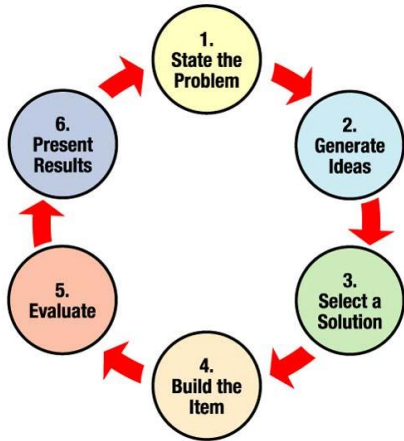
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START

Morris' House

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Help Morris get from his house to the school using the materials provided.


Group Supplies:

- Teddy Bear Counter or other manipulative to represent Morris
- Morris Map Page
- Various materials







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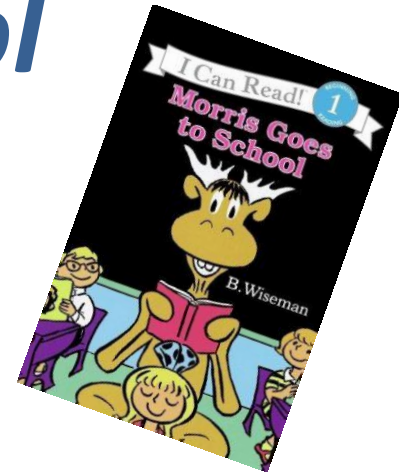
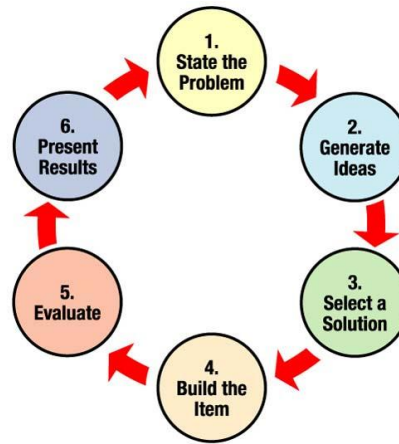


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Morris Map Page

Various materials