

Don't Let the Pigeon Drive the Bus!

K-2 Grade STEM Start-Ups



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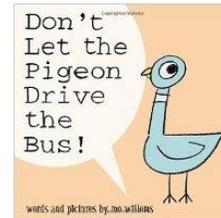
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1. DON'T LET THE PIGEON DRIVE THE BUS!

Primary Resource: *Don't Let the Pigeon Drive the Bus!* by Mo Williams

Adapted by: The Pigeon's Teacher Guide



1.1. INTRODUCTION

Don't let the Pigeon Drive the Bus is an engaging and hilarious picture book by Mo Williams. Before the text, students will be given discussion questions to access prior knowledge. During reading, students will make text-to-self connections. After reading, students will hold a debate on the following prompt: Should the Pigeon drive the bus? In addition, students will write sentences to display their viewpoint.

Finally, students will work together to solve a challenge using the design process. The students will engage effectively in a range of collaborative discussions with diverse partners to build on others' ideas and express their own clearly. Students will review ideas expressed and draw conclusions in light of information and knowledge gained from the discussions.

1.2. MATERIALS

- *Don't Let the Pigeon Drive the Bus!* By Mo Williams (Picture Book/ YouTube video/ PDF)

Bus Design Challenge Materials:

- **Jet:** Balloon, rubber band or tape, flexible straw
- **Body:** Water bottle, juice box, fast food container, ice cream container, individual milk carton, etc. (pick one)
- **Axles:** Straws, chopsticks, or BBQ skewers (pick one)
- **Wheels:** Bottle caps, candy mints with hole, CDs, cardboard circles (pick one)
- **Connector for attaching wheels to an axle:** Dry sponge, foam, clay, marshmallow (cut in half) (pick one)
- **Driver:** Pigeon paper cutout (see Figure 1 - optional)

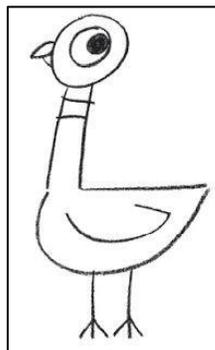


Figure 1: Pigeon Paper Cut-Out

1.3. LANGUAGE ARTS WORK

1.3.1. EXPLORE THE TEXT

Before reading: Discussion questions:

- What are some things you've want to do very badly but you weren't allowed?
- How do you feel when you are told no?
- Why do you think that you're not allowed to do the things you want?
- What are some things you try to do to make your (parent, teacher, and babysitter) change their mind?

During reading: Ask students to make text-to-self connections while the teacher is reading the book or watching the video. Make a list of these connections on chart paper.

After reading: Debate

Divide the class into two groups: pro-pigeon driving and anti-pigeon driving. Each group must come up with a list of reasons to support their side. Then, start a debate with the topic: Should the Pigeon drive the bus?

1.3.2. PART 2

After the Debate, students will have to pick a side. Children can write and illustrate new sentences to represent their opinion: "Don't let the Pigeon drive the bus BECAUSE . . ." or "Do let the Pigeon drive the bus BECAUSE..."

Do you think the **pigeon** should be able to drive the bus? Tell why you think the **pigeon should** or **should not** drive the bus.

I think the pigeon

The reason why I think the pigeon

1.4. DESIGN CHALLENGE

The adorable pigeon has given up on asking the bus driver if he can drive the bus. He has decided to take a different route. He has come to you and asked, “Will you PLEASE create a bus I can drive?” The goal is to create a bus for the pigeon to drive that will travel the furthest distance. Your bus cannot use a ramp and you are only allowed to use the materials provided.

1.5. DESIGN PROCESS

In their reading journal, students will answer the following questions:

- Ask:
 - What is the problem?
 - What are the materials?
 - What are the constraints?
- Brainstorm:
 - What are some ideas?
- Plan:
 - Draw and label a sketch for your solution.
- Test:
 - Was your challenge successful? Why or why not?
- Improve/Reflection:
 - If you were to complete the challenge again, what would you keep the same and what would you do differently? (Justify/Provide evidence for each answer.)

1.6. RUBRIC

Category	Developing (1)	Good (2)	Excellent (3)	Score
Language Arts Work	Answer does not have an opinion and the reason does not support opinion.	The opinion is stated but there is no reason to support opinion.	The opinion is stated with a reason to support the opinion.	
Design Process	Brainstorming: Ideas are unclear to connect to problem. Plan/Create/Build: The design and model is not aligned with the criteria, constraints, and intent of the problem. Improve/Reflection: Student only explains one	Brainstorming: Ideas are somewhere aligned to problem but need explanation to make clear. Plan/Create/Build: The design and model is somewhat aligned with the criteria, constraints, and intent of the problem. Improve/Reflection: Student	Brainstorming: Ideas are aligned to problem. Plan/Create/Build: The design and model is aligned with the criteria, constraints, and intent of the problem. Improve/Reflection: Student explains what would be kept the same	

	concept either what would be kept the same or what would be changed. Also, does not provide evidence for response.	explains what would be kept the same and what would be changed, but does not provide evidence for response.	and what would be changed. Provides evidence for response.	
Collaboration	Ignores and distracts others. Shows no understanding of project and has a negative attitude during work time. Argues with others and does not ask or answer any questions.	Listens respectfully and follows directions. Shows understanding of project and sometimes will argue with others. Asks and answers questions.	Listens respectfully and engages in discussion. Shows understanding of project and has a positive attitude during work time. Never argues with others. Asks and answers questions and provides evidence to support answers.	

1.7. RESOURCES

This 5 Step Engineering Design Process template can help the students answer the questions for the design process during their challenge:

- The Works: The Hands On Museum <http://teachers.egfi-k12.org/wp-content/uploads/2010/05/Post-lesson-Student-Activities-Engineers-and-the-Engineering-Design-Process.pdf>

Design Squad and Steve Spangler resources provide step-by-step instructions on how to build a type of balloon car. These resources can guide students through the building process. Keep in mind, what materials they choose will affect the distance the bus will travel.

- Design Squad: <http://pbskids.org/designsquad/build/4-wheel-balloon-car/>
- Steve Spangler: <https://www.youtube.com/watch?v=zchLdCI3Ygw>