

# Makerspace/STEM

## Task Cards

Community-Building Theme



10

Challenges



EDP



Digital  
Included



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Lesson  
Plans



Digital  
Choice  
Board



**Maker Stations** focus on design thinking and allow students to work through the Engineering Design Process as well as focus on **building a classroom community** through creativity, collaboration, critical thinking, community, and curiosity **without taking up a ton of space.**

## Perfect for:

- Makerspace & STEM
- Encourage Reluctant Learners
- Centers or Stations
- Classrooms or Media Centers
- Hands-On, Outside-the-Box Thinking
- Collaborative Work
- Real-World Problem Solving



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# Lesson Plans and Resources

✓ Objective

✓ Essential Questions

✓ Vocabulary

✓ Standards

✓ Book Titles

✓ Materials

✓ Lesson

## Back-to-School Building Challenges

### Makerspace Description:

Students will design and build a variety of solutions for Back-to-School challenges based on 10 back-to-school books using the engineering design process.

### Essential Questions:

- How do makers define a simple problem that can be solved by the development of a new or improved tool?
- How do makers determine the difference between a model and an actual object the model represents?
- How do makers compare, contrast, and identify models?
- How do makers make and use a model?
- How do makers use tools and materials to design and build a device that solves a particular problem or a solution?
- How do makers compare multiple solutions?
- How do makers share findings with others?

### Vocabulary:

model, observation, investigation, solutions

- Maybe by Kobi Yamada (
- Brave Every Day by Tudy (



More

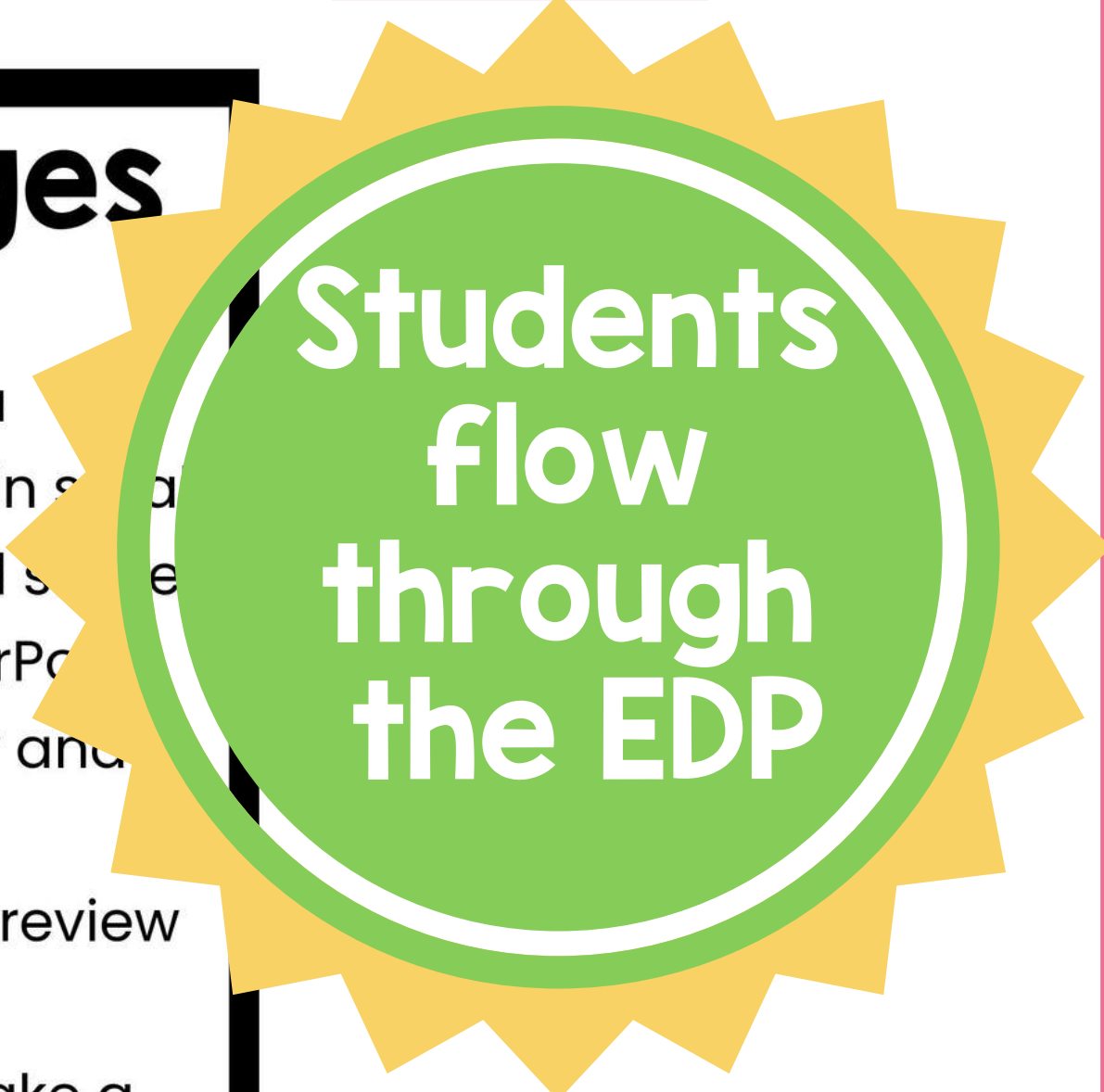


# Take a closer Look!

## Back-to-School Building Challenges

### Challenge Lesson:

1. Start by telling students that they will be engineering a solution for a problem faced by the characters in the stories. They will be working in small groups to develop their solution, create a model of their solution and share their solution with others. (Sharing could be done with a video, PowerPoint or oral presentation depending upon time and available technology and tech skills.)
2. Review essential questions and possible vocabulary (this may be a review of science terms)
3. Share a challenge card with students. Give kids a few minutes to make a list of questions they have about building a solution. {This may take some practice, as formulating questions can be difficult for some students. Allow them to think quietly on their own for a minute or two and then open it up to partner sharing or team sharing to encourage conversation and stimulate thinking.} Record a question in Makerspace Challenge Notebook.
4. Allow students to create a construction plan.
5. Allow students to construct the solution to the problem.



Students  
flow  
through  
the EDP



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# 10 Open-Ended Challenges



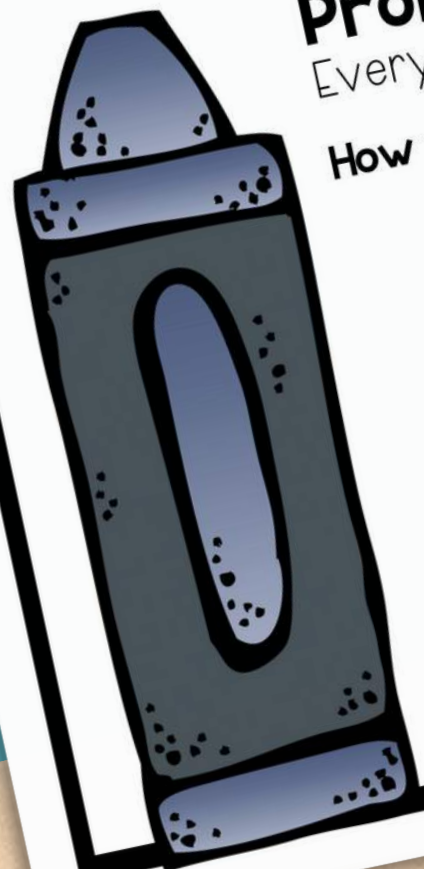
Focused on  
Community

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# Samples

## Build a Safe Space That Works For All Types of Learners



### Problem:

Every person learns and thinks differently.

How will you solve this problem?

### Challenge

- Create
- work
- sm
- he
- sn
- U
- Y

## Build a School That Allows Everyone to Feel Included

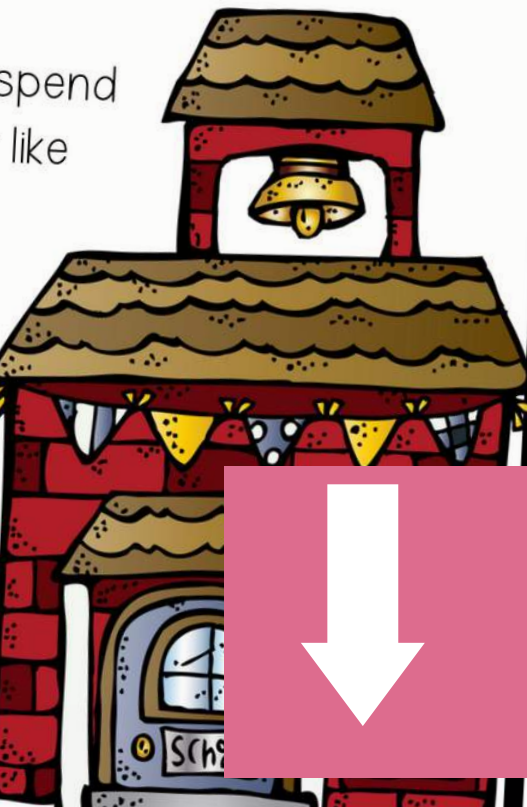
### Problem:

So if our classroom is the place where we spend our days, why wouldn't we want to make it like home in many ways?

How will you solve this problem?

### Challenge Criteria and Constraints:

- Create a model of a school that allows everyone to feel included and like they are part of a family.
- Use cardboard, paper, tape, and or glue.
- You have \_\_\_\_\_ minutes to complete your challenge.



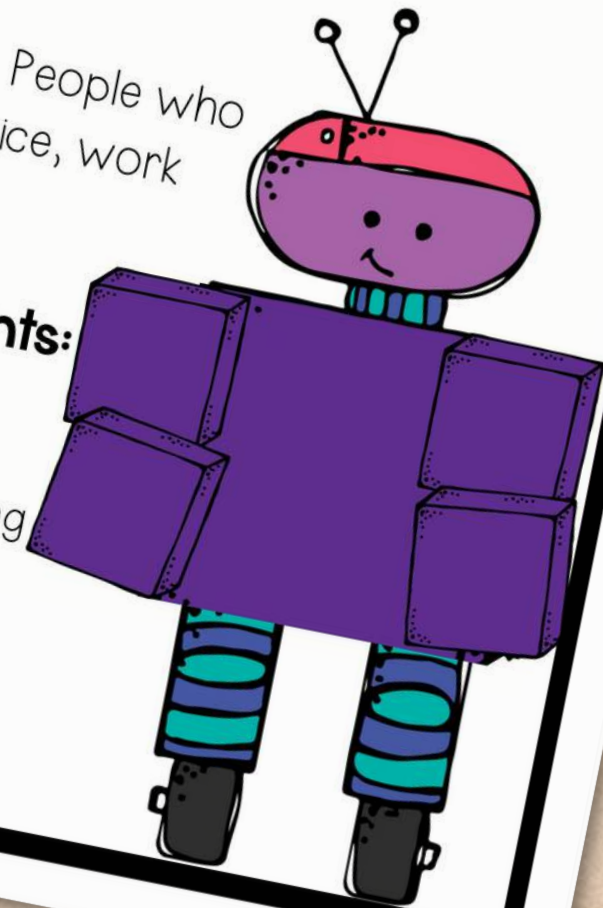
## Build a Model of a Purple Person

### Problem:

The world needs more purple people. People who ask questions, laugh a lot, and work hard and their voice, work

### Constraints:

- n.
- s,
- rking
- ete



More



# Take a closer Look!

✓ Problem presented

✓ Criteria

✓ Constraints

✓ Based on Real Literature

## Build a Mode of Transportation Where All Are Welcome

### Problem:

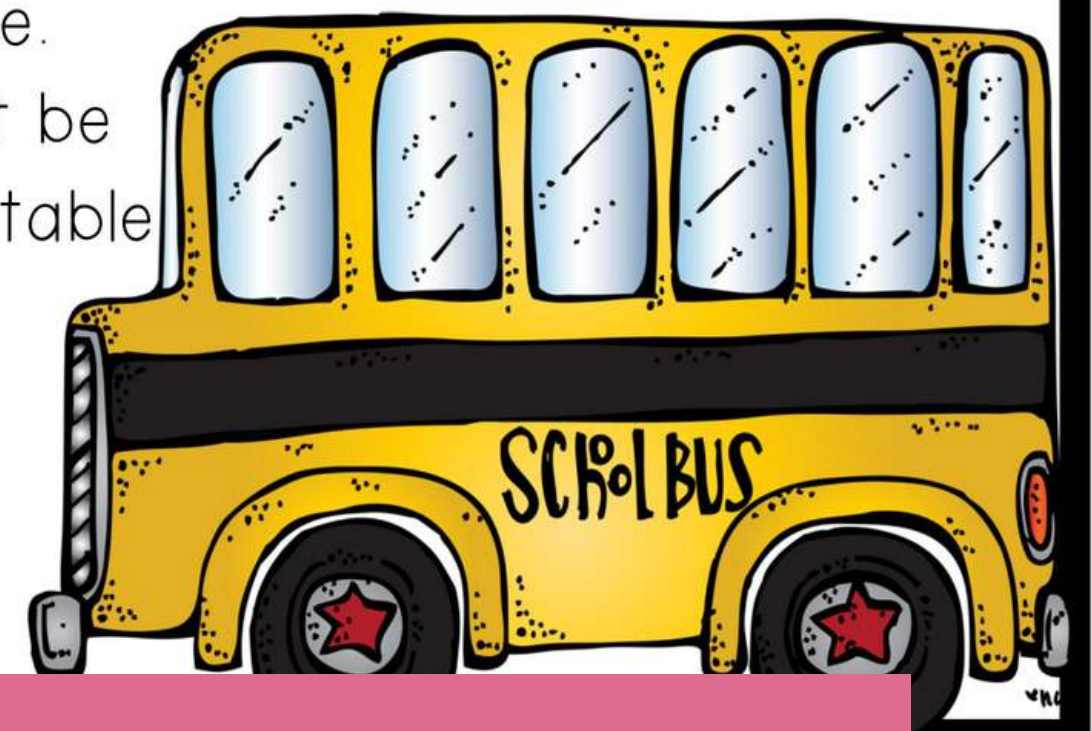
Not everyone can get to and from school easily.

How will you solve this problem?

### Challenge Criteria and Constraints:

- Build a mode of transportation that allows all different types of people.
- The mode of transportation must be able to move from one side of a table or desk to the other side.
- Use any materials you choose.
- You have \_\_\_\_\_ minutes to complete your challenge.

Be Ready  
for Open  
House



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# More Examples



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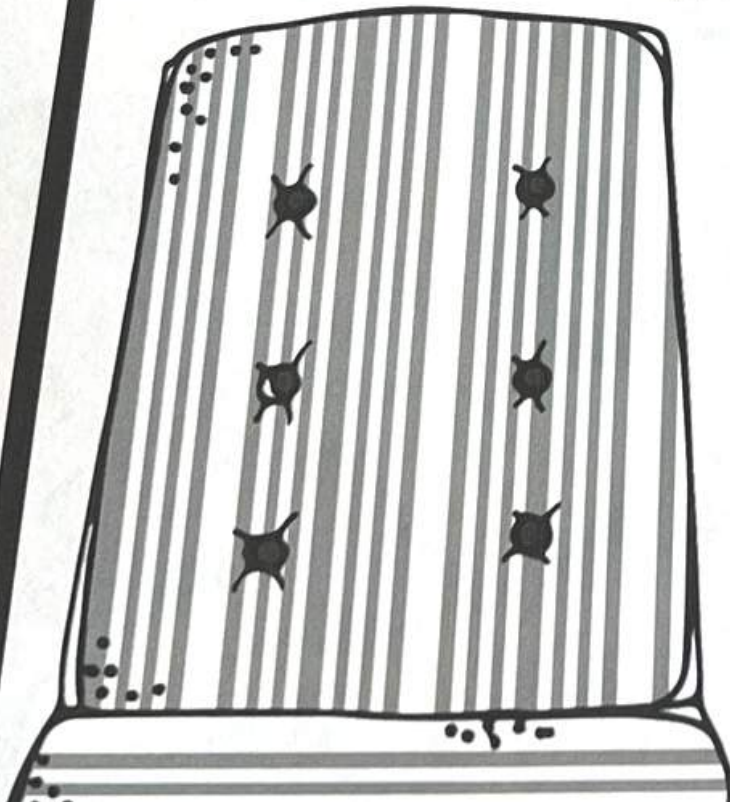


# More Examples

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Community

Wemberly Worried

## Build a Feel Relaxed Solution For Weberly



### Problem:

Wemberly worried about everything. She worried about big things and little things, and everything in between.

How will you solve this problem?

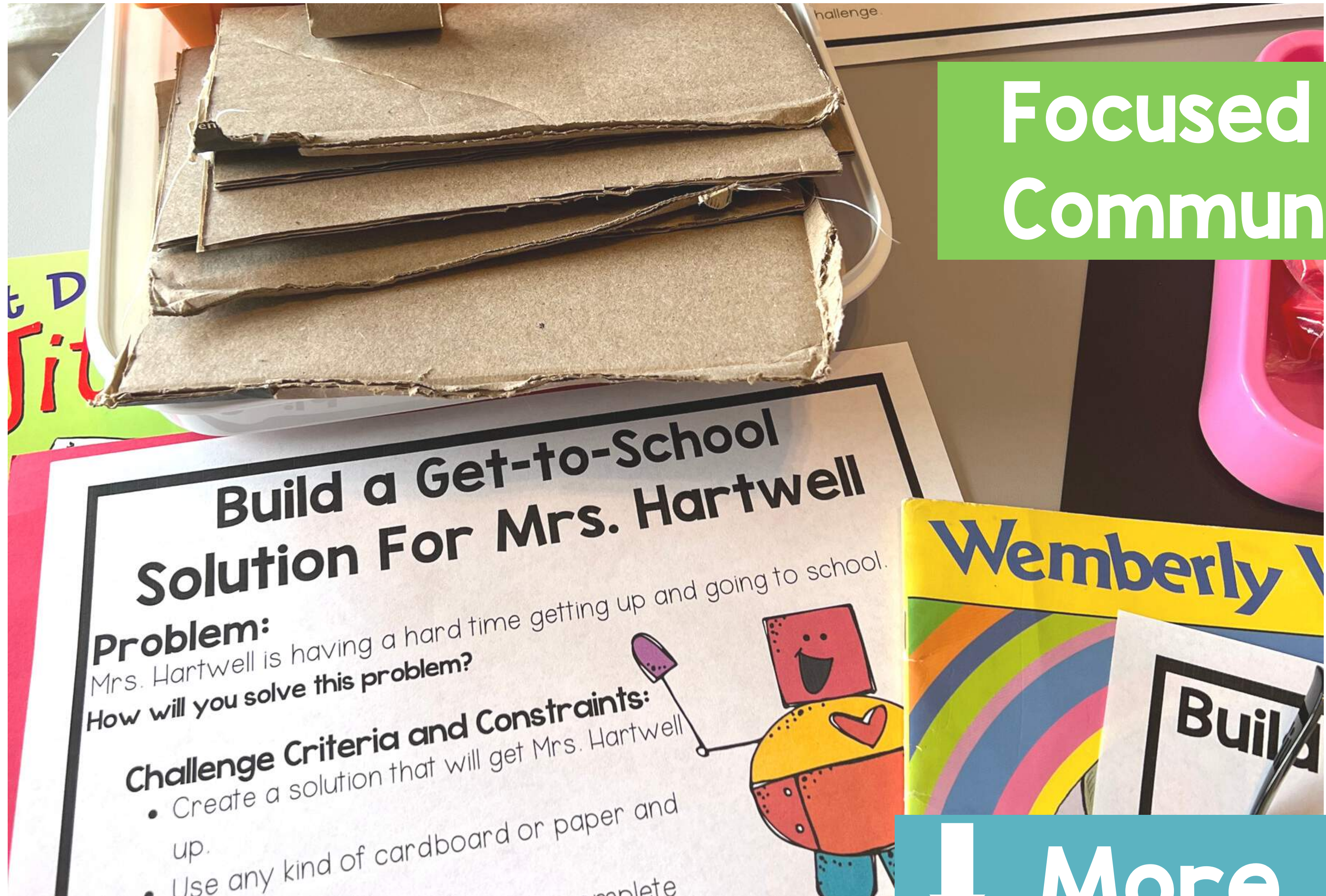
### Challenge Criteria

- Your solution ne

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# More Examples

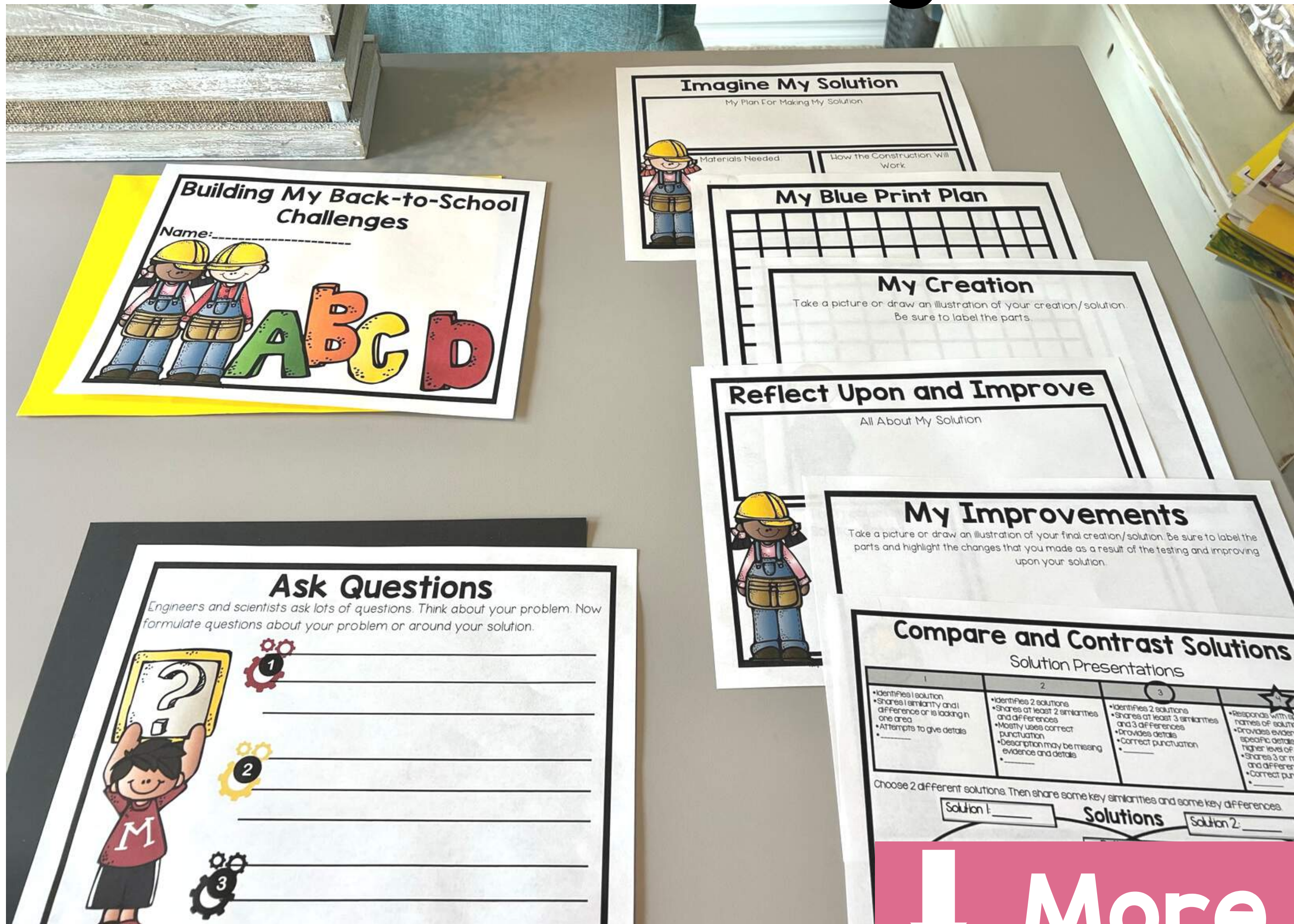


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# Students Work Through the EDP



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# Take a closer Look!

- ✓ Ask Questions
- ✓ Imagine Solution
- ✓ Plan
- ✓ Build and Create
- ✓ Test/Revise
- ✓ Reflect and Share

## Imagine My Solution

My Plan For Making My Solution

Materials Needed:

How the Construction Will Work



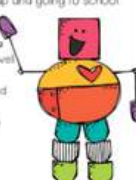
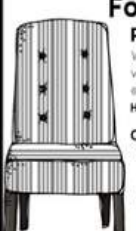



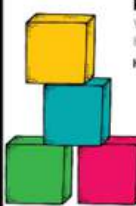
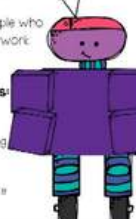

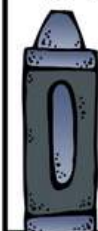



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# Digital Version Included With Choice Board

## Makerspace Choice Board

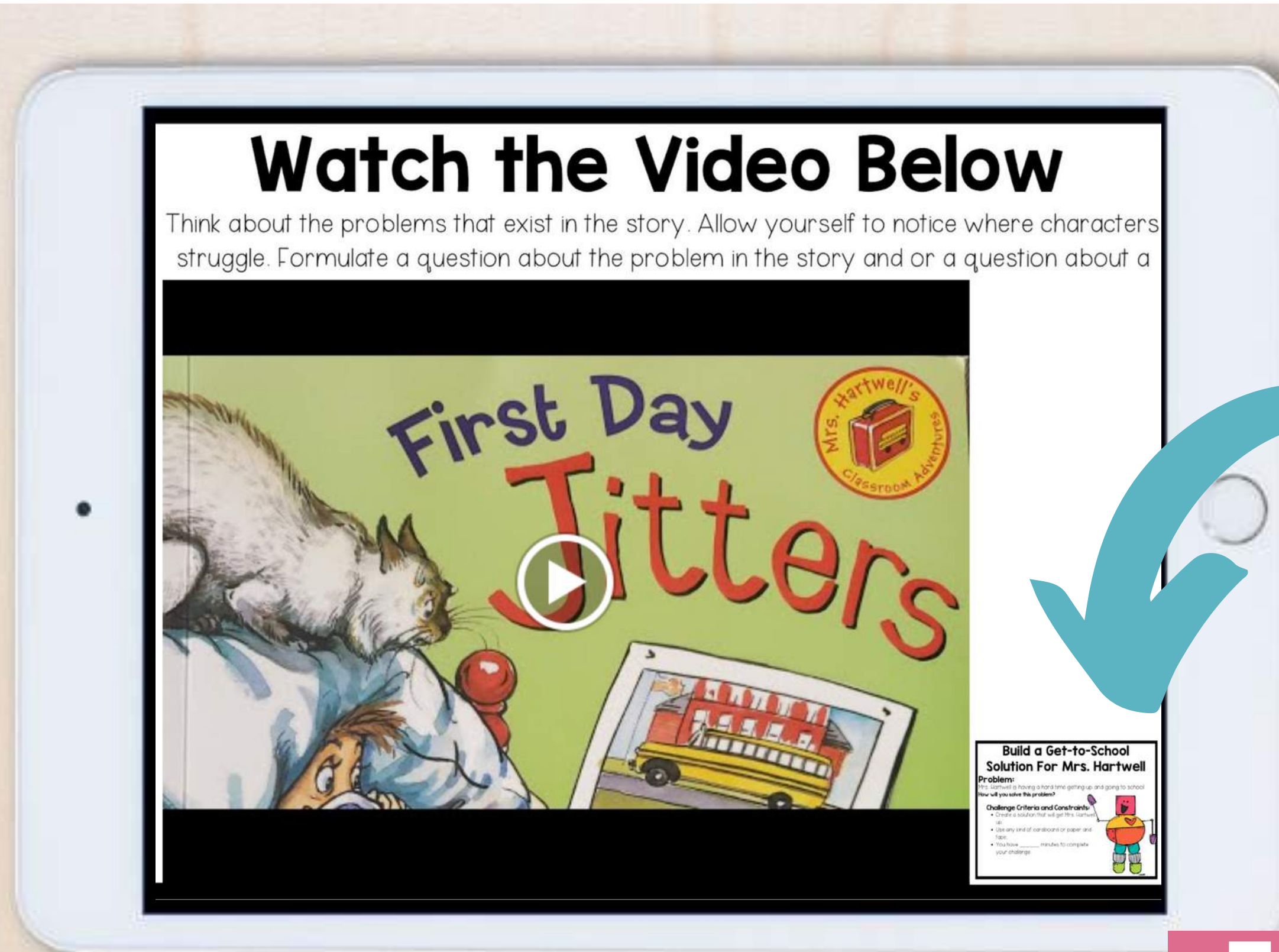
Choose your challenge. Click on your choice and begin your building adventure!

<b>Build a Get-to-School Solution For Mrs. Hartwell</b> <b>Problem:</b> Mrs. Hartwell is having a hard time getting up and going to school. <b>How will you solve this problem?</b> <b>Challenge Criteria and Constraints:</b> <ul style="list-style-type: none"><li>• Create a solution that will get Mrs. Hartwell to school.</li><li>• Use any kind of cardboard or paper and tape.</li><li>• You have _____ minutes to complete your challenge.</li></ul> 	<b>Build a Feel Relaxed Solution For Weberly</b> <b>Problem:</b> Weberly worried about everything. She worried about big things and little things, and everything in between. <b>How will you solve this problem?</b> <b>Challenge Criteria and Constraints:</b> <ul style="list-style-type: none"><li>• Your solution needs to help Weberly feel the opposite of worried.</li><li>• Use any materials you want.</li><li>• You have _____ minutes to complete your challenge.</li></ul> 	<b>Build an Invention That Nobody Has Ever Seen</b> <b>Problem:</b> The young girl in Maybe is trying to determine who she is and what she is meant to do and be. She wants to create something that nobody has ever seen to solve a problem. <b>How will you solve this problem?</b> <b>Challenge Criteria and Constraints:</b> <ul style="list-style-type: none"><li>• Your solution needs to be unique and solve a real-world problem.</li><li>• Use any materials you want.</li><li>• You have _____ minutes to complete your challenge.</li></ul> 	<b>Build a Device to Help Camila Feel Brave</b> <b>Problem:</b> Camila hides when she worries. And she worries a lot. Worrying keeps Camila from trying new things. Camila doesn't think she is brave. <b>How will you solve this problem?</b> <b>Challenge Criteria and Constraints:</b> <ul style="list-style-type: none"><li>• Create a device that will help Camila feel brave.</li><li>• Use any materials you can find.</li><li>• You have _____ minutes to complete your challenge.</li></ul> 
<b>Build a School That Allows Everyone to Feel Included</b> <b>Problem:</b> So if our classroom is the place where we spend our days, why wouldn't we want to make it like home in many ways? <b>How will you solve this problem?</b> <b>Challenge Criteria and Constraints:</b> <ul style="list-style-type: none"><li>• Create a model of a school that allows everyone to feel included and like they are part of a family.</li><li>• Use cardboard, paper, tape, and/or glue.</li><li>• You have _____ minutes to complete your challenge.</li></ul> 	<b>Build a Device that Helps Others Reach Their Full Potential</b> <b>Problem:</b> We all have dreams, but sometimes we feel like we can't reach them. <b>How will you solve this problem?</b> <b>Challenge Criteria and Constraints:</b> <ul style="list-style-type: none"><li>• Create a device that helps others reach their full potential.</li><li>• Use any building blocks.</li><li>• You have _____ minutes to complete your challenge.</li></ul> 	<b>Build a Model of a Purple Person</b> <b>Problem:</b> The world needs more purple people. People who ask questions, laugh a lot, use their voice, work hard, and are just like YOU! <b>How will you solve this problem?</b> <b>Challenge Criteria and Constraints:</b> <ul style="list-style-type: none"><li>• Create a model of a purple person.</li><li>• Show evidence of using questions, laughing, using your voice, and working hard.</li><li>• Use any materials you choose.</li><li>• You have _____ minutes to complete your challenge.</li></ul> 	<b>Build a Mode of Transportation Where All Are Welcome</b> <b>Problem:</b> Not everyone can get to and from school easily. <b>How will you solve this problem?</b> <b>Challenge Criteria and Constraints:</b> <ul style="list-style-type: none"><li>• Build a mode of transportation that allows all different types of people.</li><li>• The mode of transportation must be able to move from one side of a table or desk to the other side.</li><li>• Use any materials you choose.</li><li>• You have _____ minutes to complete your challenge.</li></ul> 
<b>Build a Safe Space That Works For All Types of Learners</b> <b>Problem:</b> Every person learns and thinks differently. <b>How will you solve this problem?</b> <b>Challenge Criteria and Constraints:</b> <ul style="list-style-type: none"><li>• Create a model or a vision of a space that will work for people who are math smart, word smart, science smart, reading smart, and heart smart. Bonus points for music or art smart!</li><li>• Use any kind of cardboard or paper and tape.</li><li>• You have _____ minutes to complete your challenge.</li></ul> 	<b>Build a Model of Yourself to Help Your Teacher Get to Know You</b> <b>Problem:</b> Teachers have lots of students to get to know. <b>How will you solve this problem?</b> <b>Challenge Criteria and Constraints:</b> <ul style="list-style-type: none"><li>• Create a model of yourself that helps your teacher get to know you.</li><li>• Use Play-Doh or building clay.</li><li>• You have _____ minutes to complete your challenge.</li></ul> 	<b>Building My Back-to-School Challenges</b> Name: _____ 	 Home Button

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# Each Choice Takes Students to Read Aloud On YouTube



Students click the challenge to go to the challenge slide.

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# Solution Slide

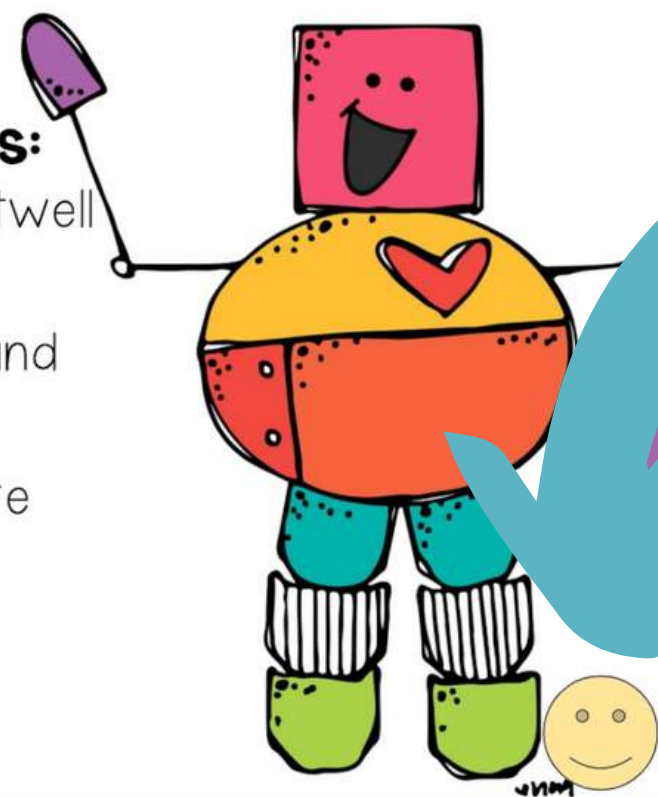
## Build a Get-to-School Solution For Mrs. Hartwell

### Problem:

Mrs. Hartwell is having a hard time getting up and going to school.  
How will you solve this problem?

### Challenge Criteria and Constraints:

- Create a solution that will get Mrs. Hartwell up.
- Use any kind of cardboard or paper and tape.
- You have \_\_\_\_\_ minutes to complete your challenge.



Students  
click the  
smiley  
face to  
go back  
Home.



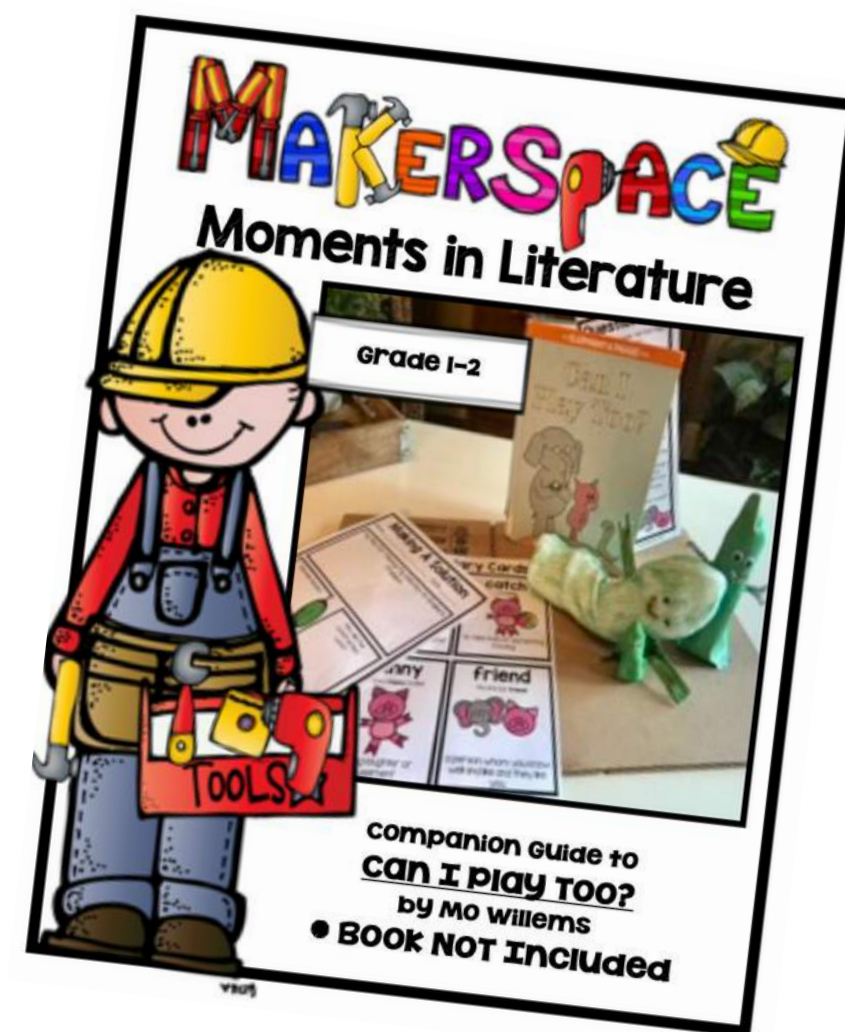
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Moment in Literature!**

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# About the Author

**Trina Deboree has over 17 years of teaching experience in first and second grade. Trina has also been a Student Support Specialist and a Media Specialist. She earned her Master's Degree in Education Technology and Media Design and was formally Nationally Certified in Early Childhood Generalist.**

**Trina is a single mom of 2 incredible young people and a dog mom of Kobe her Goldendoodle. Trina is passionate about serving teachers and helping them instill a love for learning.**



# Let's Connect



**Let me know if you have  
any questions.**



TRINA DEBOREE