Can you be an engineering detective? Find solutions that engineers designed in your home, school, and neighborhood communities. Write them down on the chart below.

Make sure you notice whether they make life easier, safer, or more fun.

**Exploring My Community Worksheet**

**Solutions in My School Community**

<table>
<thead>
<tr>
<th>Name of solution</th>
<th>Easier, safer, or more fun?</th>
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<tbody>
<tr>
<td></td>
<td>This solution makes life at school __________________________.</td>
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We Need Engineering!
## Solutions in My Home Community

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<tbody>
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<td>This solution makes life at home ______________________________.</td>
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<td>Name of solution</td>
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<td>------------------</td>
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</tbody>
</table>
|                  | This solution makes life in my neighborhood ____________________________.
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Mindset Sorting Chart

Read the statements below. Which show a growth mindset? Which show a fixed mindset? Sort the statements and write them in the chart.

If I keep trying, I know I can finish it.  
It is too hard. I can’t figure it out.  
I will never get it right.  
I will try it a different way next time.  
I will keep practicing until I get it right.  
I am just not good at it.  
I can’t wait to learn something new.  
I haven’t found the answer yet.

<table>
<thead>
<tr>
<th>Growth Mindset</th>
<th>Fixed Mindset</th>
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Engineering Challenge Sheet

Time to be an engineer and find a solution to a problem! Are you up for the challenge?

Jack and Jill need help to carry their bucket of water up the hill.

Design a way to lift a bucket from the floor to the top of your desk.
Your design must:
• Use paper as one material
• Include three or more materials in total
• Be easy to use and carry
• Hold the bucket safely as you lift it from the floor to the desk
• Make sure no water spills!

Start by filling your bucket with water. Lift it to see how heavy it is. Then, get started!

Planning Our Design

Here are our ideas:

Our best idea is: _______________________________________________
These are the materials we will need:

This is what our design will look like:
MY GROWTH MINDSET

Think about the engineering challenge you completed. How did you show growth mindset? Write three or more sentences.

__________________________________________________________________
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Model Planning and Testing Sheet

Planning Our Model

Our solution:

____________________________________________________________________
____________________________________________________________________

Planning our model
How will you show your idea? Write down the steps your group will take to build a model of your solution.

____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________

Materials
Write down all of the materials you will need to build your model.

____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________

Draw a picture of how your model will look:
**Testing Our Model**
Try out your model to see if it solves the problem. Write down things that worked, and things that could be better.

<table>
<thead>
<tr>
<th>Things that worked</th>
<th>Things that could be better</th>
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Does my model solve the problem?

☐ Yes  ☐ No

Write down at least one way you will improve your idea:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

**Draw a picture of how your improved model will look:**
Model Worksheet

Jane brings her lunches to school in a lunch box. But every time she opens it at lunchtime, her juice box has squished her sandwich! Help Jane design a solution.

Brainstorm ideas for a lunchtime solution here:

Make a drawing or diagram of your best solution idea here:

Our best solution idea is:

What materials will you need to make a physical model of your solution?

•  _______________________________  •  _______________________________

•  _______________________________  •  _______________________________

•  _______________________________  •  _______________________________

When you are finished this page, show it to your teacher.
Sally and Henry are engineers. But they have a problem!

They were late for work every morning! They could not wake up on time, no matter how hard they tried.

Sally and Henry knew they could find a solution. They brainstormed ideas.

| go to bed extra early | alarm clock | machine that opens curtains every morning |

Sally and Henry looked at their ideas. They picked the best solution. It is **an alarm clock**.

They tested the solution. But their tests found a problem!
The alarm clock is TOO LOUD! It could hurt people’s ears.

Let’s fix it!” Sally said. “We can let people choose how loud the alarm should be.”

“Good idea,” agrees Henry. The engineers improve the model. Sally and Henry have found the best solution!

The alarm clock helps Henry and Sally wake up on time every morning.
Sally and Henry are engineers. But they have a problem!

Sally and Henry knew they could find a solution. They brainstormed ideas.

Sally and Henry looked at their ideas. They picked the best solution. It is ____________________________________________.

They tested the solution. But their tests found a problem!
Let’s fix it!” Sally said.

“Good idea,” agrees Henry. The engineers improve the model. Sally and Henry have found the best solution!