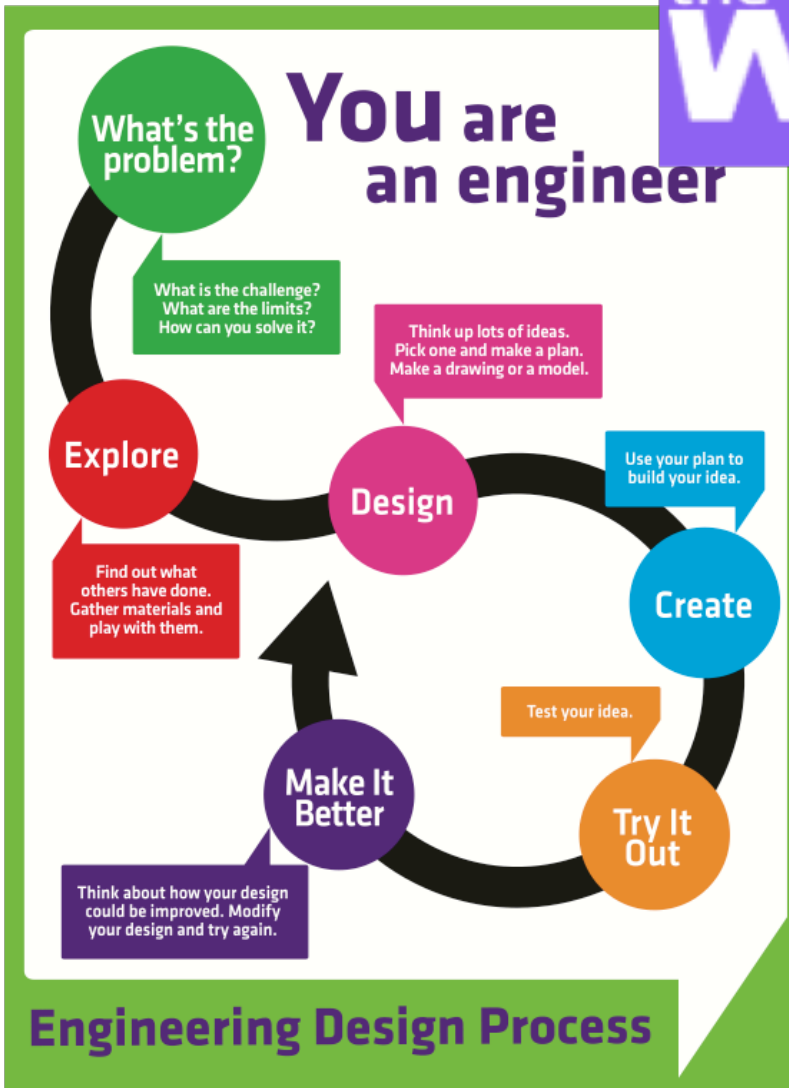


# Cereal Box Project



Name: \_\_\_\_\_

Date: \_\_\_\_\_ Grade: \_\_\_\_\_ Section: \_\_\_\_\_



# Cereal Box Project

## DESIGN CHALLENGE

>> Design and build a cereal box that will appeal to the wants and needs of fifth grader's and their parents

Criteria	Constraints
<p><i>A self-standing, six sided box with...</i></p> <p><b>Front Panel</b></p> <ul style="list-style-type: none"> <li>• Company Logo</li> <li>• Name of cereal</li> <li>• Graphic and/or photo</li> </ul> <p><b>Back Panel</b></p> <ul style="list-style-type: none"> <li>• Additional information</li> <li>• Game or puzzle</li> </ul> <p><b>Left Side Panel</b></p> <ul style="list-style-type: none"> <li>• Company Logo</li> <li>• Company name, address and website</li> <li>• Amount of weight</li> <li>• Nutritional Facts</li> <li>• Names and class section</li> </ul>	<p><i>Your prototype must stay within these limits...</i></p> <p><i>The information on the box cannot...</i></p> <ul style="list-style-type: none"> <li>• Misrepresent the product or contain any inappropriate graphics, words or terms.</li> <li>• Use a name that already exists or characters from other cereal brands. You may use a cartoon, movie, sports or television personality.</li> <li>• Use black and white graphics.</li> <li>• Have images, fonts, labels etc., from the Internet without citing the source.</li> </ul>
Approved Materials	Key Points
<ul style="list-style-type: none"> <li>• Hot glue</li> <li>• Paper</li> <li>• Other materials: (teacher approval needed)</li> </ul> <p><b>*NOTE: Materials will NOT be given out</b> until a drawing is submitted with different views and an explanation of the design choice. <b>Points will be lost</b> if replacement parts are needed.</p>	<ul style="list-style-type: none"> <li>▪ Red makes people feel like they have the power to make choices</li> <li>▪ Orange stimulates the appetite and is one of the most popular cereal box colors</li> <li>▪ Blue calms and relaxes people</li> <li>▪ Yellow makes people feel cheerful and energized</li> </ul>
	Key Terms
	<ul style="list-style-type: none"> <li>• <b>Product-</b> an object or a service provided to customers.</li> <li>• <b>Target market-</b> a specific group of people that a company makes its product for.</li> <li>• <b>Consumer</b> – A person who buys a good or service.</li> <li>• <b>Brand Name</b> – The name under which a company sells its products.</li> <li>• <b>Promotion-</b>advertising the product or making the customer aware of the product or service.</li> <li>• <b>Pricing-</b> determining how much something will cost</li> </ul>

## Cereal Box Competition

The target market group will evaluate each box on the following 5 items:

1. **Logo** (Is the logo eye-catching & memorable? Does it stand out from other logos?)
2. **Name of cereal** (Does the name create interest? Is it easy to remember?)
3. **Ingredients** (Will the target market like the ingredients?)
4. **Colors & graphics** (Do the colors go together and have the effect you want? [See Key Points above])
5. **Shape and design of box** (Does it attract attention? Is it unique? Does it look "cool"?)

## IDENTIFY THE PROBLEM

*In your own words... state what you've been asked to do.*

I have been asked to \_\_\_\_\_ that will

*Look at the rubric for this project on the last page and then answer the next two questions.*

1. What do you think will be the most challenging part? \_\_\_\_\_

2. What's ONE strategy you can try to overcome it? \_\_\_\_\_

## RESEARCH THE PROBLEM

Conduct interviews with your target market (fifth grader's) and record their responses in the table below. Put a check mark under the items they prefer and add them up when you're done.

Student	Sugar coating	Color	Unique shapes	Marsh-mallows	Fruit	Nuts	Reduced calories	Extra nutrition
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
<b>TOTALS</b>								
<b>TOP 3</b>								

## DEVELOP POSSIBLE SOLUTIONS

In the boxes below, draw six (6) **different isometric versions** (see example) of what your cereal box might look like. It's very important to include the top choices from the target market and show them on the outside of each box in very dramatic ways, using colors and font shapes to attract attention like the examples below.

**The food packaging information should tell the user:**

- ▲ the name and a description of the food;
- ▲ the name and address of the company that made it;
- ▲ the amount of weight of the contents;
- ▲ the ingredients that have been used to make it;
- ▲ nutritional information, such as the calories it contains, if it is high in fibre and so on;
- ▲ how the food should be prepared or cooked;
- ▲ how long it can be kept and in what conditions;



Prototype #1	Prototype #2
Prototype #3	Prototype #4
Prototype #5	Prototype #6

Figure out the cost of manufacturing your cereal and your profit by filling in the price points below

CEREAL	COST	COST TO MAKE
▪ 15 oz	\$0.70	
▪ Sugar coating	\$0.27	
▪ Coloring (raspberry red, lemon yellow, etc)	Each color \$0.16	
▪ Unique or unusual shapes	\$0.14	
▪ Marshmallows	\$0.23	
▪ Fruit (raisins, blueberries, etc.)	Each type of fruit \$0.26	
▪ Nuts	\$0.25	
▪ Reduced fat and calories	\$0.27	
▪ Extra nutrition	\$0.32	
BOX	COST	COST TO MAKE
▪ 15 oz. standard box w/4 colors	\$0.32	
▪ Larger than 15 oz. or irregular shape (octagon)	\$0.48	
▪ Foil inner wrapper	\$0.13	
▪ Wax paper wrapper	\$0.32	
▪ Prize inside	\$0.42	
▪ Celebrity/Sports person on package	\$0.50	
▪ Fictional character on package	\$0.25	
<b>TOTAL PRODUCTION COST</b> (Add all of the above)		
<b>PROFIT FOR YOUR COMPANY</b> (Multiply production cost by 13% (0.13))		
<b>COST TO RETAILERS</b> (Add production cost plus profit)		
<b>COST TO CONSUMERS</b> (Add cost to retailers plus profit to company)		

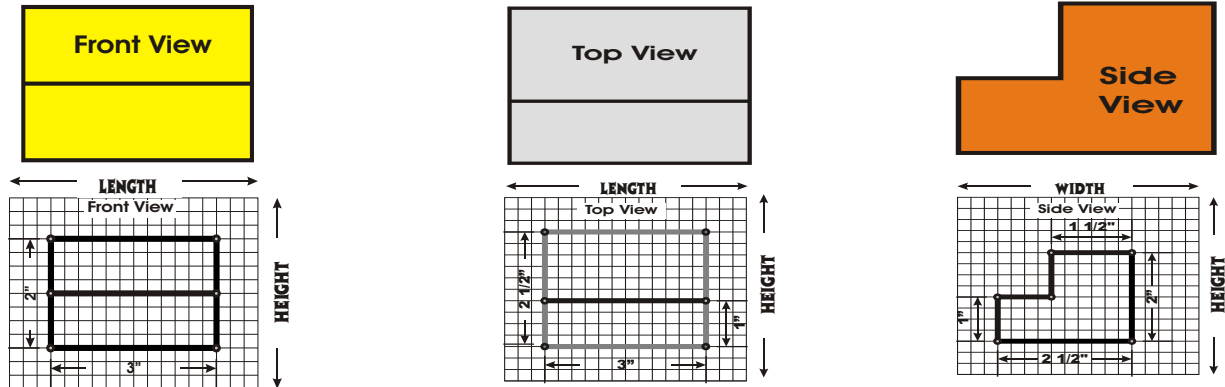




## CHOOSE A SOLUTION

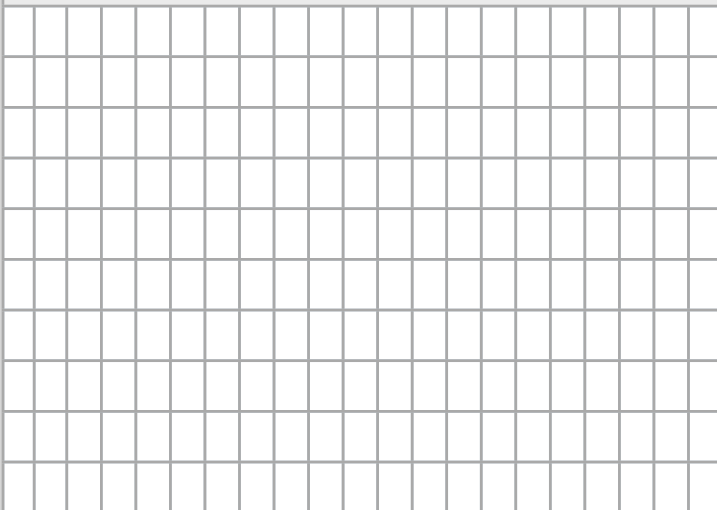
You need to create clear, specific and labeled drawings (using rulers and other drawing instruments) from three different views (front, top and side). Label the dimensions like the examples below.

**You will not be able to build until the drawings are completed.**

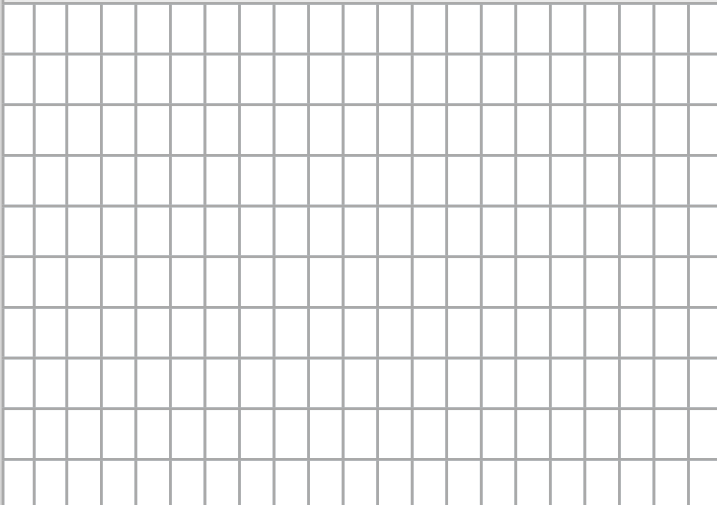


### Orthographic Production Drawings

**Front View**



**Top View**



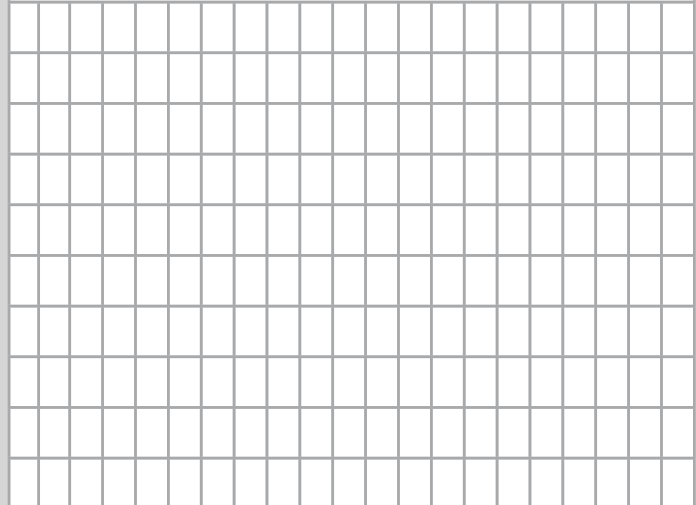
**Materials Needed**

*(Ex. 1 piece of cardboard 2'x3')*

**Tools Needed**



**Side View**



# BUILD A PROTOTYPE ENGINEERING LOGS

## EXAMPLE

On the lines below, describe what you did. Mention any difficulties you had or any design changes you made.	Make a labeled sketch that shows what you did.
<p><b>LOG #5: Date:</b> <u>5/3/12</u></p> <p>Today, I finished attaching the motor. I had a hard time w/ the gears because the gear with the gray motor is so big so I changed it to a little smaller instead. I also used a velcro instead of gluing the motor on the car. Today my car is fi-</p>	
<input type="checkbox"/> <b>YES</b> I described the drawing in a clear and understandable way <input type="checkbox"/> <b>YES</b> I used key terms and information to accurately describe my progress and drawing. I have enough information. <input type="checkbox"/> <b>YES</b> My description is neatly written and legible.	<input type="checkbox"/> <b>YES</b> My drawing is large enough to show all the details. <input type="checkbox"/> <b>YES</b> My line quality is sharp and precise (no smudges) <input type="checkbox"/> <b>YES</b> My labels are outside the drawing and accurate <input type="checkbox"/> <b>YES</b> My drawing uses shading for highlights

Describe what you did today. Mention any problems you had, design changes or questions.	Make a labeled sketch that shows what you did.
<p><b>LOG #1 Date:</b> _____</p> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>	<div style="border: 1px solid black; height: 200px; width: 100%;"></div>
<b>YES</b> I used complete sentences to describe my progress <b>YES</b> My description is neatly written and legible <b>YES</b> I used key terms when possible	<b>YES</b> My drawing is large enough and centered in the space <b>YES</b> My line quality is sharp and precise (no smudges) <b>YES</b> Labels and dimensions are OUTSIDE the drawing



Describe what you did today. Mention any problems you had, design changes or questions.	Make a labeled sketch that shows what you did.
<b>LOG #2 Date:</b> _____             	
<b>YES</b> I used complete sentences to describe my progress <b>YES</b> My description is neatly written and legible <b>YES</b> I used key terms when possible	<b>YES</b> My drawing is large enough and centered in the space <b>YES</b> My line quality is sharp and precise (no smudges) <b>YES</b> Labels and dimensions are OUTSIDE the drawing

Describe what you did today. Mention any problems you had, design changes or questions.	Make a labeled sketch that shows what you did.
<b>LOG #3 Date:</b> _____             	
<b>YES</b> I used complete sentences to describe my progress <b>YES</b> My description is neatly written and legible <b>YES</b> I used key terms when possible	<b>YES</b> My drawing is large enough and centered in the space <b>YES</b> My line quality is sharp and precise (no smudges) <b>YES</b> Labels and dimensions are OUTSIDE the drawing

Describe what you did today. Mention any problems you had, design changes or questions.	Make a labeled sketch that shows what you did.
<b>LOG #4 Date:</b> _____           	
<b>YES</b> I used complete sentences to describe my progress <b>YES</b> My description is neatly written and legible <b>YES</b> I used key terms when possible	<b>YES</b> My drawing is large enough and centered in the space <b>YES</b> My line quality is sharp and precise (no smudges) <b>YES</b> Labels and dimensions are OUTSIDE the drawing

Describe what you did today. Mention any problems you had, design changes or questions.	Make a labeled sketch that shows what you did.
<b>LOG #5 Date:</b> _____           	
<b>YES</b> I used complete sentences to describe my progress <b>YES</b> My description is neatly written and legible <b>YES</b> I used key terms when possible	<b>YES</b> My drawing is large enough and centered in the space <b>YES</b> My line quality is sharp and precise (no smudges) <b>YES</b> Labels and dimensions are OUTSIDE the drawing

## COMPLETE DECISION

**My prototype's performance was:** (Check one)

**Exceptional:** it worked every time it was tested and needed no repairs

*Some reasons for this are:*

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Very good:** it worked most of the time it was tested and didn't need any (or many) repairs

*Some reasons for this are:*

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Good:** it worked some of the time it was tested and needed repairs

*Some reasons for this are:*

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Not good:** it didn't really work

*Some reasons for this are:*

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

### Things that I redesigned (changed)

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

### What the changes did

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

### Things I'd do differently next time

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

### What these might do

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_



# Cereal Box Project

Name: \_\_\_\_\_

Date: \_\_\_\_\_ Grade: \_\_\_\_\_ Section: \_\_\_\_\_

<b>GOAL #1: I CAN apply</b> the Engineering Design process to <b>imagine, plan</b> and <b>build</b> solutions to situations involving bioengineering.					
<b><i>This is how I'll do it...</i></b>					
<i>a. I will make a collection of isometric concept drawings that shows different ways to solve a problem. [p.4]</i>					
0	1	2	3	4	
<i>b. I will have an explanation for my "best idea" with specific reasons and supporting details. [p.4]</i>					
0	1	2	3	4	
<i>c. I will make three-view orthographic drawings of my "best idea" with measurements &amp; labels that others can follow. [p.6]</i>					
0	1	2	3	4	
<i>d. I will complete open response question(s) about manufacturing technology &amp; engineering [p.12]</i>					
0	1	2	3	4	
<i>e. I will keep track of my progress and design changes by completing engineering logs during the project.</i>					
<b>Engineering Log #1</b> [p.8]					
0	1	2	3	4	
<b>Engineering Log #2</b> [p.9]					
0	1	2	3	4	
<b>Engineering Log #3</b> [p.9]					
0	1	2	3	4	
<b>Engineering Log #4</b> [p.10]					
0	1	2	3	4	
<b>Engineering Log #5</b> [p.10]					
0	1	2	3	4	
<i>f. I will collect and display data about my prototype and use it to evaluate how well it worked. [p.11]</i>					
0	1	2	3	4	
<b>Final Score</b>					

<b>GOAL#2: I CAN select</b> and <b>judge</b> which tools, materials and methods are the best and safest to use when making a prototype.					
<b><i>This is how I'll do it...</i></b>					
<i>a. I will wear safety goggles and follow all safety procedures in the workshop <b>without</b> reminders.</i>					
0	1	2	3	4	
<i>b. I'll keep track of my materials and not need any replacement parts.</i>					
0	1	2	3	4	
<i>c. I will clean up my work space and put tools and materials back where they belong.</i>					
0	1	2	3	4	
<i>d. I will pass the tool-use license test(s) for this project.</i>					
0	1	2	3	4	
<b>Final Score</b>					

<b>GOAL#3: I CAN explain</b> and <b>defend</b> my reasons for the tools and materials I use when building prototypes.					
<b><i>This is how I'll do it...</i></b>					
<i>a. I will follow my production drawings and building guide to make cardboard furniture fit for an "average" middle school student.</i>					
0	1	2	3	4	
<i>b. I will build a prototype that looks like a finished product without any loose parts, damaged or rough surfaces, dents, gouges or globs of glue.</i>					
0	1	2	3	4	
<i>c. I will build, test and demonstrate a prototype that is sturdy, holds together and doesn't need repairs between multiple uses.</i>					
0	1	2	3	4	
<b>Final Score</b>					