Barilla Pasta Packers

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Part I: Overview of Workplace

Barilla Ames is part of a much larger international family-owned food company by the same name. Established in 1877, it now reaches more than 100 countries. They are a world leader in the markets of pasta and sauces and also produce bakery products and crispbreads.

The Ames plant was the first Barilla plant in the US and it opened in 1999. This plant specializes in the production of pasta, including gluten free pasta.

Part II: Workplace Focus

Member of the Quality Assurance Team

- Ensure products meet certain thresholds of acceptability
- Create policies/procedures for inspection and research
- Collect and analyze data to improve processes, identify problem areas and look at trends over time

Part III: Introduce the Problem

Barilla has a few different shapes and cuts of pasta they already make. Can you create a new pasta shape and create the packaging box that will accomodate a specific volume of product by weight? Pasta boxes seem to have a particular size depending on the type of pasta. Why is this?

What will be the public product?

Students will design a new pasta shape and cut to be made at Barilla. They will then create a model of their pasta using a 3D printer and design a box to package their new product. They are to create 2 box designs to propose and they have to hold a minimum of 1 lb in weight by volume.. New boxes have to also fit into a case box for shipping and fit onto a regular size pallet for shipping. Students will then use data to try and figure the costs of material used in their box and a pitch of why their new pasta shape is best. They also need to create a display of how the new product would look on a store shelf.

Part IV: Standards, Driving and Essential Questions

What classroom standards and learning targets could this learning unit cover?

7.G.B: Solve real-life and and mathematical problems about area, surface area and volume. Students can explore a variety of 3D solids. This is the main standard that would be assessed, but connections could also be made to proportional reasoning when figuring the cost of new box sizes (7.RP.2) and also comparing data using graphs and equations (7.EE.B).

Part IV: Standards, Driving and Essential Questions

What are the main driving questions and underlying questions to help move students toward learning targets, benchmarks and the eventual project or problem solution?

- What is the amount of cardboard needed for a package? Case?
- What does the unfolded box (net) look like?
- Are there any relationships between surface area and volume?
- Could any other shapes be used for packing?

Further Study:

- Is your box sturdy enough for product to be stacked on it?
- Is there an ideal shape that maximizes the volume needed but uses the least amount of cardboard?
- How would your new product look on a shelf in a store?

Part V: Extern Host Role

What is the role of your extern host in this learning unit? Include names and titles so others can reach out to these professionals.

Kim Martinez - Quality and Technology Manager (Kim.Martinez@Barilla.com)

Sarah Clough - Quality Assurance Specialist (Sarah.Clough@Barilla.com)

I would ask them to visit my classroom to help introduce the project as well as to be part of final presentations.
They would also bring in samples/materials for students to use for comparing their samples so students could then create new unique cuts of pasta. They could also bring some box cutouts so students could see how packages come before being filled. At projects end, they could return and select their favorite proposals.

Part VI: Student Learning

Do they have some level of voice and choice? Are there opportunities for revision? Are there opportunities for reflection along the way?

Students will choose new pasta shapes and name it as well as design packaging for their product.. They will be able to make modifications as they explore surface area and volume if numbers do not fit criteria for the project. Reflection can be built in as students successfully find solutions. A big focus of reflection will be the following:

- Is this the only set of dimensions possible or can it be improved?
- Is this the best shape?
- How will this pack into a case? onto a pallet?
- How would it look on a store shelf?
- Do you think there is a reason behind the current box design(s)? How does your new proposal improve the current line of products?