

# PUZZLERS

## #23 | NO-BAKE GRANOLA BAR



### Puzzle

Create a no-bake healthy granola bar.

### Standards & Connections

NGSS.3-5-ETS1, NGSS.MS-ETS1

#### Background:

Oats are considered a whole grain because they still have their entire grain kernel – the bran, germ, and endosperm.<sup>i</sup> Horses eat oats whole, but most oats you buy at the grocery store have been steamed and flattened to make them easier for people to eat. Oats are used in a variety of goods including cereals and granola bars. Eating oats and oatmeal can lower our “bad” cholesterol and may help lower our risk of heart disease.<sup>ii</sup>

### Suggested Materials:

Wax paper, quick oats, honey, nut butter, seeds, dried fruit, nuts, spices



#### IDENTIFY

Share the background information with the students, then share the puzzle to be solved. Determine constraints (e.g., time allotted, space, materials provided, etc.) and divide students into small groups.



#### IMAGINE

Ask a series of questions to help students brainstorm solutions to the puzzle. Encourage students to list all ideas – don't hold back! Before moving on, make sure each group selects a solution that fits within the constraints.

**Ask:** How can you solve this puzzle? Which of your ideas can you build a prototype for given the constraints?



#### DESIGN

Students diagram the prototype, identify the materials needed to build the prototype, and write out the steps to take. Students describe the expected outcomes.

**Ask:** What steps will you take to create your solution? What do you expect your solution to look like and be able to do?



## CREATE

Students follow their design plan and build their prototypes. Monitor their progress and remind them about how much time they have.



## TEST & IMPROVE

Students evaluate their creation and compare it with the expected outcomes. Students seek areas of improvement and make changes where needed.



## SHARE

Students share their solution to the puzzle and communicate lessons learned.

**Ask:** What was your biggest takeaway? What would you do differently?

## Additional Resources:

For more background information on this topic, please visit [www.purpleplow.org](http://www.purpleplow.org).



**Have a taste test! See which students made the tastiest granola bars. Be sure to check if any of the students have allergies before starting this Puzzler.**

<sup>1</sup> U.S. Department of Agriculture. (2018, April 6). All about the grains group. Retrieved from <https://www.choosemyplate.gov/grains>

<sup>11</sup> Whole Grains Council. (n.d.). Oats - January grain of the month. Retrieved from <https://wholegrainscouncil.org/whole-grains-101/easy-waysenjoy-whole-grains/grain-month-calendar/oats-%E2%80%93-january-grain-month>