



Tomatoes Worksheet

Objective:

Students will be able to understand the impact that genetic improvements have made on the agriculture industry with a hands-on activity about the tomato industry.

Indiana Academic Standards

Science

Integrated Chemistry & Physics

9-10.LST.2.3 - Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.

Food Science

FS-7.4 - Analyze the degree of desirable food qualities for foods stored in various packaging

FS-7.5 - Explain materials and methods of food packaging and presentation.

National Agricultural Literacy Outcomes

Plants and Animals for Food, Fiber & Energy Outcomes

T2.9-12d - Evaluate evidence for differing points of view on topics related to agricultural production, processing, and marketing

Supplies:

- A worksheet that has the instructions and a table for the students to record their answers.
- Fresh tomatoes (still firm) - enough to be divided between small groups or one for each individual (up to the instructor).
- Heavier objects (textbooks)
- Scales
- Paper plates



Name: _____



Activity: Research has been done for many years about ways to make the outside of tomatoes stronger and able to hold more weight for transportation. This allows for a more efficient process and trucks to be able to carry more in one trip. This means that the tomatoes that are on the bottom of the truck must carry quite a bit of weight and compaction.

For this hands-on activity, we are going to see how much weight the tomatoes in this classroom can handle. Then, you will calculate the average weight from the whole class.

Instructions: Weigh the tomato and record the weight. Place your tomato on a plate or a surface that is easy to be cleaned. Use old heavy books or other objects in your classroom and start setting them on top of the tomato.

Once your tomato starts to crush or squeeze, take the heavy objects off and weigh them on the scales. Record your weight in the table. Compare the impact weight to the tomato's original weight. Make observations. Compare with other groups.

Weight of tomato	Weight of objects at the point when the tomato cracks



Teacher Answer Key

Make sure that the math is correct for the average weight a tomato can hold. Ask the students to discuss why this is important for the transportation and shipping of tomatoes.

- Makes it more efficient.
- Can put more tomatoes on a truck.
- More efficient with gas mileage, less trips to transport tomatoes.

Once the students have this solved, they get the puzzle piece for tomatoes.

Background Information:

- Indiana is one of the top five tomato-producing states in the country.
- The Red Gold plant (the largest tomato plant in Indiana) is located in Madison County - Elwood, Indiana.
- Red Gold factory grows 10,000-11,000 acres of tomatoes annually.
- Tomatoes contribute \$4.8 billion to the American economy.
- Tomatoes are very high in vitamins A and C, making them a great choice for any snack or meal.

Careers:

Plant biologist, plant genetics scientists, produce marketer and urban farmer