

Build a Turkey Cage

Overview: Students work in small groups using the Engineering Design Process to design a cage for turkeys.

Objective: Students will be able to:

- use the Engineering Design Process to design a turkey cage
- work in small groups to build a model of the agreed-upon design

Grades: 3-5, can be modified for older grades

Materials:

Let's Talk Turkeys: STEM powerpoint presentation

Build a Turkey Cage Challenge student pages – one copy for each student

Turkey cut-outs

NOTE: all resources are available to download under Animal Agriculture/Turkeys at newjersey.agclassroom.org.



Building Materials for each group:

toothpicks, toilet paper rolls, straws, popsicle sticks, pipe cleaners, masking tape.
You may add any other materials you choose.

Instructions:

You can use the *Build a Turkey Cage Challenge* presentation to introduce the activity to the class (slide 2). Before you start, determine how many turkeys the cage needs to hold and assemble the turkeys so that they stand. You do this by cutting them out and taping the tabs together.

Students will start by brainstorming independently (slide 3). After they have sketched their designs, put them into small groups to discuss what they came up with and choose one design or use elements of all designs to create a new one (slide 4).

Students will acquire materials and build their group design (slide 5). Teachers will decide if the type or amount of materials will be limited and/or whether there will be a time limit for an additional challenge.

Test the cages to be sure they can hold the required number of turkeys.

Students will then think about what worked and what didn't by answering the questions (slide 6).

Students will reflect on their experience (slide 7) and then share with the class.

NOTE: Something to keep in mind - turkeys can fly. Teachers can choose whether they discuss this with students before they build or after. This may be something that they don't know but can be used to spark conversation about the engineering design process and having to make improvements when more information is acquired.

Evaluation:

Completed Turkey Challenge student pages

New Jersey Learning Standards:

Science

- 3-5-ETS1-1 Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
- 3-5-ETS1-2 Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
- 3-5-ETS1-3 Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.