Meet Extension Agent Karen Massey

Karen Massey, Family and Consumer Science Extension Agent and Routt County Extension Director, is an enthusiastic STEM supporter. Her love of science took hold during her studies at Colorado State University. She earned degrees in Food Science and Nutrition, and Home Economics and Health Education, always with a mission to improve the health and nutrition of her students and clients.

Before joining Extension, Karen taught nutrition to a variety of audiences. She taught middle/high school in Glenwood Springs, then as a dietitian/educator for worksite wellness programs, and later she served on the faculty of Metropolitan State Collage in Denver.

Always a promoter of nutrition and health, Karen focuses on safe food handling and food preparation. This love of good food led Karen to write and edit numerous cookbooks for the Colorado Dietetic Association and other organizations. Now, Karen conducts food safety classes for local restaurants, nutrition classes for school and community groups, and participates in the promotion of local agriculture and safe, secure food systems.

Karen lives in Steamboat Springs with her husband, Dean, a local science teacher. Her twin sons were involved in 4-H and are now sophomores in college majoring in science and environmental studies.

STEM Connections

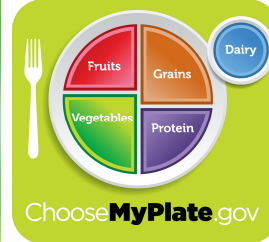Connecting Science, Technology, Engineering, and Math concepts to our everyday lives.

Colorado State University Extension

The Science of Eating

Delicious, mouthwateringly good meals to help you grow into an amazing adult

Why do we need to eat? Why can't we just eat our favorite foods?

ChooseMyPlate.gov

After a hard day of school, homework, chores, and play, it is finally dinner time! You drop into the chair and inhale deeply. Ahhhh, that smells good, as you anticipate your first bite. Our bodies use food to make energy available for cells and provide the necessary atoms and molecules for our own cells (like replacing a broken stone tile with a new tile in your floor).

A calorie is the amount of energy it takes to heat 1 gram of water by 1 degree Celsius. When we talk about a food **Calorie** (with a capital C), we are talking about the energy needed to raise the temperature 1 degree Celsius for 1000 times more water (a kilogram). Different foods have different amounts of energy stored in them. Fat stores about 9 Calories per gram, while other kinds of food store 4 or less Calories per gram.

In addition to the energy in food, we need the atoms and molecules for our cells to use as building blocks necessary to operate efficiently. Vitamins and minerals are needed in very small quantities to help our bodies function properly. For example, we need a small bit of iron (a mineral) for our red blood cells to trap oxygen molecules in our lungs and carry them to every cell in our body. The oxygen is used to help take the energy in food and turn it into little packets of energy that the cell can use, called ATP.

So, in order to support the needs of every single cell in your body, you need to eat a variety of foods. What is best of all, eating **nutritious** meals are fun to plan and tasty to eat!

EXPLORE IT - DESIGN IT - DO IT

- Label each of the paper plates "Breakfast," "Lunch," and "Dinner."
- Lay out all your color pie shapes with the foods listed on them. Each of your meal plates needs to be covered with the color pie shapes, following these rules (to help you plan your family meals):
  - Half your plate needs to have red, orange, yellow, or green pie shapes.
  - One quarter of you plate needs purple pie shapes.
  - One quarter of your plate needs brown pie shapes.
  - You need one blue pie shape above and to the right of you plate (where you place the glass for each meal)
  - If you are still hungry after you fill your plate with the other colors, you may choose one white food group as an extra.
  - Once you use a pie shape, you many not use it again for another meal.
- Take each meal, one at a time, and decide what food groups you would pick for that day. Cover the plates, and make sure that you have met all the rules above. Is each plate colorful?
- If you have a computer available, go to http://www.choosemyplate.gov/food-groups/ and click "Healthy Eating Tips" for recipes, or you can find some cookbooks at your community library or in your home.
- What recipes will you pick that uses the different foods you have on each plate? Your final meal may have vegetables, meat, dairy, and grain in a single dish! Have fun, because this is where you can be creative!

Age Appropriate:
4th—HS grades

Time Required:
60 minutes

Materials:
- Scissors
- Marker
- 3 paper plates
- Construction paper
  - 3 green
  - 1 red, 1 orange, 1 yellow, 1 purple, 1 brown, 1 blue, 1 white

Directions to make the My Plate game:
- Trace the paper plate on each piece of paper except the white paper.
- Cut out each of the construction paper circles.
- Fold the circle construction paper twice, once in half, and once again, to make four equal pie shapes.
- Cut the construction paper on the fold lines. You will have 12 green, and 4 of all the other colors (except white).
- Fold the white paper in half 4 times. When you unfold it, you will have 16 rectangles. Cut along the folds.
- Each color represents a different food group. List foods on it as described:
  - Green—list vegetables including dark green, starchy, red/orange, beans/legumes, etc.
  - Red, Orange, Yellow—list fruits that are those, or similar colors (don't forget blueberries)
  - Purple—list proteins, like eggs, meat, and nuts
  - Brown—list grains, like bread, pasta, and rice
  - Blue—list dairy, like milk, yogurt, and cheese
  - White—extra food like a cookie or soft drink.

Power Words
- **Calorie**: amount of energy obtained from food
- **nutritious**: describes food that is necessary for health and growth