

The NASA SCI Files™
The Case of the Physical Fitness Challenge

Segment 3

While jogging at Sandy Bottom Nature Park in Hampton, Virginia, the detectives remember that the U.S. Surgeon General, Vice Admiral Carmona, had suggested that they need to learn more about the new food guide pyramid. They email Tony, who heads over to Texas A&M University in College Station, Texas to visit Dr. Joanne Lupton, Regents Professor and Program Leader for the National Space Biomedical Research Institute (NSBRI). Dr. Lupton also worked with the Food and Drug Administration (FDA) to help create new dietary guidelines, and she explains the new food guide pyramid categories and how to determine the correct number of portions in each group for an individual. Dr. Lupton recommends that they speak with Dr. Ted Mitchell of the Cooper Clinic in Dallas, Texas and a member of the Science Board for the President's Council on Physical Fitness and Sports. Bianca and Blake dial up Dr. Mitchell to learn about a person's basal metabolic rate (BMR) and why it is important to calculate BMR. Bianca and Blake also get some help from a NASA SCI Files™ Kids' Club member, Callum Mackie, who visits Ms. Gill Poulter at the Discovery Point Antarctic Museum in Dundee, Scotland. Ms. Poulter explains the importance of nutrition in exploration and tells them that when the RRS *Discovery* made the first exploration expedition to Antarctica, nutrition was a concern but little was known about it.

Objectives

Students will

- test foods for complex carbohydrates.
- compare estimated portion sizes to the recommended portion size.
- determine the importance of portion size to a healthy diet.
- discover which foods contain fat.

Vocabulary

Basal Metabolic Rate (BMR) – an estimate of a person's energy needs at rest

Body Mass Index (BMI) – a formula to estimate how much body fat a person has based on height and age

discretionary calories – the small number of calories you can use on luxury foods, such as fats or added sugars, after choosing foods with the essential nutrients your body needs

nutrition – the study of food components (called nutrients) as they are eaten, used by the body, and removed from the body

scurvy – disease caused by lack of vitamin C