



## GROSSOLOGY

by Sylvia Branzei

### What is Grossology?

If you said to your students, "Raise your hand if you want to learn about the excretory system" how many students would respond? However, if you said, "Raise your hand if you want to learn about pee, poo, and sweat" many enthusiastic hands would go up. That is the teaching approach used by Grossology.

All the books in the *Grossology* series present scientifically accurate information in a manner that is kid-friendly yet informative. The goal of *Grossology* is not to be gross but to teach science.

*Grossology* was created by a science educator, Sylvia Branzei. One day, as Sylvia sat clipping her toenails, she noticed the icky stuff that forms under the nails and thought, "Hey, I can figure out what that disgusting stuff under my nails is." After she contemplated the formation of toe jam, an idea hit her. "Kids love gross stuff. I can teach them science using gross as a hook. *Grossology!*" She wrote the text and various activities, which she tested on students in her after-school science program. They were hooked. She later tested her materials in the classroom, where she taught science to children in kindergarten through high school classes. The students were so excited about learning, teachers overheard junior high students sharing the information with the younger students. At the high school, students complained that they weren't learning *Grossology* as well. Sylvia supplemented the high school biology program with *Grossology*.

Since the publication of **Grossology**, **Animal Grossology**, and **Grossology Begins at Home**, Sylvia has received letters and e-mail from teachers all over the country. Some elementary and junior high school teachers use *Grossology* as the classroom text for studies in human anatomy, natural sciences, and microbiology. Others set up weekly stations or use *Grossology* as a special reward at the close of the week. Some high school teachers use the books as a supplement. Sylvia even received a letter from a college physiology teacher who uses *Grossology*.

### Why *Grossology*?

In a traditional introductory science course, children learn more vocabulary than in a first-year language course. The new vocabulary is coupled with new concepts. The child must translate the new words and immediately apply them. The result is that most children only learn to hate science because they believe it is difficult. The *Grossology* series presents scientific information without burying it under layers of vocabulary. Common words are used to present concepts. The scientific terms are also introduced, but the child is not dependent on them for understanding a complex process.

Children, especially in middle school and junior high, are most curious about the world around themselves. If they can relate information to their everyday lives, they will retain the information longer. The *Grossology* series was developed with this in mind. Scientific topics are located in familiar settings. For example, in *Animal Grossology*, sea lampreys are discussed. Most students will never encounter a lamprey. However, this animal is included in a section titled "Slime Makers." Students can relate to slime. They may also be familiar with other animals mentioned in the section, such as slugs or snails.

Finally, *Grossology* is fun. Science does not have to be boring in its look or in its voice. Sylvia Branzei uses an entertaining tone to present information. Her love of science comes across as playful and joyous. Jack Keely's drawings are funny. His cartoon characters are youthful yet accurate. Even when he draws a silly-looking cockroach in *Grossology Begins at Home*, it is based on actual photos of the real insect. Together, Sylvia and Jack reach children and get them excited to learn.

## The content of each book

**Grossology**, the green book, is a physiology and health science book. It discusses various functions of the human body, which include the digestive, excretory, immune, and integumentary systems. Of course, the systems are disguised. The digestive system becomes barf, saliva, burps, bad breath, and tooth tartar. The excretory system consists of poop, diarrhea, pee, and farts. The immune system takes the guise of scabs and blisters. The integumentary system is made up of zits and dandruff. Many of the sections include laboratory exercises that enhance the information.

**Animal Grossology**, the pink book, is basically zoology and natural science. Different types of animals are explored based on their extreme characteristics, such as eating blood or producing slime. Some of the species discussed in *Animal Grossology* include sea stars, owls, ticks, lice, slime molds, tapeworms, and dung beetles. Like *Grossology*, *Animal Grossology* contains activities that can be done in the classroom.

**Grossology Begins at Home**, the orange book, is an integrated science book. It takes children through a typical day in the life of one child. That typical day, however, focuses on the gross aspects of one's home which contains animal science, health science, and microbiology. The micro-world that surrounds our daily lives introduces bacteria to students in an approach that they will remember, such as how bacteria cause food to rot and how bacteria are ever-present life forms in our kitchens. Easy activities are scattered throughout *Grossology Begins at Home*.

Each of the books in the *Grossology* series can be used separately. Information is not cumulative from one book to the next. New information is presented in each book, so there is no overlap of topics or experiments.

## What about parents or the administration?

Parental disapproval has not been a problem for teachers using *Grossology* books in the classroom. Kids become so excited about learning the information that they often share their newly acquired knowledge at home. When the parents see how thrilled their children are to learn about science, buy-in is not a problem. Actually, the larger problem has been parents allowing children to bring their *Grossology* books to school without permission from the teacher. Sylvia has received several reports from parents about teachers who have asked students to put away their *Grossology* books because the students became so enthralled in the books that no other learning was taking place.

It is a great idea to check with your administration before using *Grossology* in the classroom. In some cases, principals have requested that teachers refrain from discussing certain sections, such as those on farts or boogers. However, most teachers have not reported any restrictions on the use of *Grossology* in the classroom. *Grossology* has gained a reputation as a respected, although wacky, science book. With the acceptance of the *Grossology* series as legitimate science books, hesitation on the part of administrations has lifted.

## A Few Gross Classroom Experiments

### Belch Model

#### You will need:

vinegar, baking soda, medium or large balloon, funnel

#### What to do:

If you do this over a sink, there is much less clean-up at the end. The balloon is your stomach. Pour a small amount of vinegar into the bottom of the balloon. Use the funnel to add baking soda to the balloon stomach. Pinch the balloon closed with your fingers at the neck; this is your esophagus. Watch your balloon stomach expand with gas. Unpinch the esophagus to release gas, or a burp. Practice the pinch release to see if you can make the belch model sound like a real burp.

### Owl Pellets

#### You will need:

an owl pellet (you can collect pellets yourself or you can purchase owl pellet kits at some educational toy stores), sheet of white paper, tweezers, skewer or long needle, glue

#### What to do:

Place the pellet on the sheet of paper. Use the tweezers and skewer to tease the fur away from the bones. Collect the bones in a pile. Sort the bones into skulls, backbones, legs, etc. Figure out how many different kinds of animals' bones were in the pellet. Choose the bones that you think belong to one animal. Piece the bones to form a skeleton. Glue the skeleton together or glue it onto cardboard. Throw away the fur and other animal parts that you don't use.

## Toilet Paper Testing

### You will need:

several brands of toilet paper, water, eye-dropper, a dozen large nuts or bolts

### What to do:

To test for absorbency: From each brand of toilet paper, remove three squares. For each brand, fold the squares along the perforations to make one square. You should now have one square that is three layers thick. Use the eye-dropper to place one drop of water on each of the brands. Check the bottom layer of each brand to see if the water leaked through. Add water drop by drop to each brand until one leaks. The first one to leak is the least absorbent. The one that holds the most drops before leaking is the most absorbent. To test for strength: Remove one square from each brand. Wet the center of each square. Place one nut or bolt on each square. Lift. Do any of the brands rip? Add nuts or bolts until one of the brands rips when it is lifted. The brand to rip first is the least strong. The one to rip last is the strongest.

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