

# Flaws of Averages

## BLOSSOMS Module

### Teacher's Guide

Hello! Welcome to the Teacher's Guide for our Flaws of Averages BLOSSOMS Module!

Right from the start, and as we also state in the video, we want to be clear on one point: we are **not** trying to send the message that averages are inherently bad. Averages are often worthwhile representations of a set of data by a single descriptive number. Our objective with this module is simply to point out a few pitfalls that could arise if one is not attentive to details when calculating and interpreting averages.

The three Flaws of Averages that we have included in our module are as follows:

#1: The average is not always a good description of the actual situation

#2: The function of the average is not always the same as the average of the function

#3: The average depends on your perspective

Our supplemental files on the website as well as the video segments have a range of examples of what we mean by each of these Flaws of Averages, so please feel free to refer to those for more details.

These are not necessarily the only three flaws of averages, and we encourage you to include other flaws of averages that you have encountered and find relevant when discussing this material with your class.

When designing the Flaws of Averages module, our goal was to make the video segments as clear as possible conceptually so that most students at any level in high school could understand the concept of these three flaws of averages. The **essential prerequisite** knowledge for our Flaws of Averages module is the ability to calculate an average from a set of numbers. More **optional prerequisite** knowledge that would be helpful for going into more depth in between the video segments is knowing how to calculate the area of a circle and also familiarity in working with functions in general.

In between the video segments, the choice of what material to cover and at what depth is entirely up to you. This will clearly depend on your students' background and knowledge of mathematics. The **total length of the four in-class video segments is only 12 minutes**, leaving

lots of time in a typical class session for you to work with the students on learning examples to firm up their understanding of the ideas presented here on the flaws of averages.

Ideas of potential discussion topics that you might be interested in using in between the video segments are introduced in our four supplementary files on the website. These include a few concepts that are intended for more advanced students as well.

Clearly, you may have other ideas of what to present in between the video segments, and to that we say 'great'!

Our hope is simply that the video segments help provide an introduction to the Flaws of Averages and that you find it helpful for your curriculum! Thanks for your interest in our module!