Introduction to Module

"One … two … three …" Our earliest introduction to mathematics was counting. Maybe we counted our fingers or toes as a child, or we counted money or points scored in a basketball game, or maybe we just counted people? Counting, however, is not necessarily simple (at least accurately counting). What we count, how we count, and why we count are challenging and important questions to answer.

Unless there is a purpose to counting, the investment in time and money needed to accurately count all the people in a country is not always feasible. The United States attempts, however, to count everyone in the country every 10 years as part of a ***census***. The United States census is mandated by its Constitution. The primary purpose of this census is to provide a fair representation of all the people in the House of Representatives, one of the two legislative bodies of the United States government. The goal of fair representation, however, is not without controversy. Nonetheless, the importance of the census has its origins in establishing representation in Congress.

Estimates of the count of people living in a country are important for several other reasons. Estimates of the population inform the government of the goods and services necessary to support the population. These estimates are also critically linked to the economy, health care, education, and the infrastructure needed to connect people by roads, bridges, and airports. Counting people is a major business. As current counts are analyzed, future counts of people are estimated by making assumptions involving birth rates, death rates, and immigration and emigration rates.

This module is about counting people. It examines counts by sex at birth and age in the United States, Kenya, and Japan that is provided by the International Data Base of the United States Census Bureau (or IDB). Each country's population is made up of young, old people, and middle-aged people. Why was the United States, Kenya, and Japan selected? The reasons will become more apparent as you complete the lessons in this module.

Do all young people or old people think the same way or spend their money the same way or seek out educational options the same way? Of course not. The diversity of the people living in a country is embedded in the make-up of its population by many factors other than age. The theme of this module, however, is to understand one aspect of a country's diversity based primarily on the distributions of ages and the implications connected to age. This module also looks back at age distributions in which major events (wars, economic booms or busts, diseases, cultural values) impacted the count of people living in the country. This module also considers challenges a country may face in the future. The past, present and future are combined through the stories of people who make up the countries represented in this module.

Henry's Quilt and Its Connection to this Module

The United States Census Bureau produced an inspiring set of classroom posters prior to the 2000 United States census. One of these posters has a picture of an elderly woman and a young girl. They are wrapped in a quilt as representatives of two important generations in this country (the young and the "old"). The picture also shows them working on *expanding* the quilt. The picture is a painting by a famous Hawaiian artist, Herb Kawaine Kane. The caption that accompanies the picture reads "Generations Are Counting on You". This poster was a major inspiration for this collection of lessons entitled ***People Count! (and their data stories)***.

What do you need to know about making a quilt? First you need some tools – needles, pins, measurement tools, and scissors. Then, of course, you need cloth and maybe yarn or thread – the "stuff." The end product (which is never done) is not just something to keep you warm, or to hang on a wall, or to store away for another generation to admire. It is also a story about the people who made the quilt.

What do you need to construct a mathematical model? First you need tools. For this module, the tools will be described as proportions, ratios, population factors, foundation factors, and spreadsheets. Then you will need the stuff – in the lessons that follow, the stuff will be the population data of countries provided by the US Census Bureau. Finally, you build a model that is never complete – and the stories embedded in the model that link people to generations past, present, and the future. Constructing the model is a story of counting and people.

Quilts are more than just a blanket or a piece of cloth – they are also an art form. They are an art form that brings out sharing stories and history. The mathematical models in this module are also art forms – the symmetry (or lack of) found in a population pyramid graph and the shape of a population histogram are just like the art found in a quilt. And more importantly, this art is also about people.

Counting people may initially strike you as relatively "easy". ***People Count!*** connects real people and their stories to this process. It also explains why this process is important and a major challenge (and definitely not easy). Some people have actually stated that the survival of the United States is dependent on making sure that counting people is done correctly.

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