

labeled “G” and floors below it are “B1, B2, ...” or “P1, P2, ...” By connecting this experience with the practice in such countries as Scotland, where the ground floor is 0 and floors below it are numbered with negative integers (as in fig. 9.1), students also have the opportunity to make sense of the mathematics.

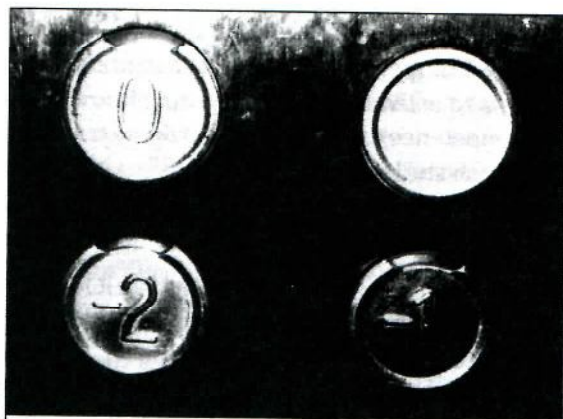


Fig. 9.1. Photo taken by author at Loch Ness Castle Urquhart tourist center

In a different area of mathematics, students learning about proportions may be asked, “If an 80-minute CD uses 70 megabytes of space on an iPod, how many minutes of music can be put on an iPod Shuffle, which holds 1000 megabytes (1 gigabyte) of music?”

Fractions in Real Life

You can also point out additional ways in which mathematical topics are used outside the classroom. For instance, why do we study fractions? Those who can do mental mathematics with fractions can compute the discounts for items on sale at the store. Some stock markets have prices that are set in increments of $\frac{1}{32}$ of a dollar. Musicians have a working knowledge of addition of fractions, especially halves, quarters, and eighths, and have their own special ways of denoting such fractions as sixths or tenths (using triplets and quintuplets, respectively). Recipes use fractions of a cup, and those who want to make partial recipes have to multiply fractions. Fractions also represent fair sharing: five people sharing three sub sandwiches get three-fifths of a sandwich, two people sharing a dozen eggs each get one-half dozen, and so forth.

Interviews with Adults Who Use Mathematics

Having students talk with adults outside the school community about mathematics can also be an effective way to illustrate real-world uses of mathematics. One teacher I know has students interview someone they know and ask how they use mathematics at work. Each student then reports a summary of the interview for the class. Another teacher's extension of this idea is to have the student interview the speaker as a way of preparing the speaker to visit the class, then to invite the speaker to class to discuss the mathematics he or she uses at work.

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