

Traveling Math

Activity 1 - The Penny Farthing Bike



You have probably seen a picture of the funny-looking *penny-farthing* or *high-wheeler* bicycles - the ones with a huge front wheel and a tiny rear wheel. These bicycles became popular starting in 1870; but by the turn of the century were replaced by bicycles that look almost exactly like any bicycle you see today.

So what was wrong with the penny-farthing bicycle? Well, in a penny-farthing bicycle the pedals and the front wheel are directly connected just like they are on a kid's tricycle. That means that when you turn the pedals one time the wheel goes around one time. That's an inexpensive way

to build a bicycle, but it has a problem. Think about a kid's tricycle. The front wheel might be 40cm (16 inches) in diameter or 127cm (50 inches) in circumference. That means that each time a kid on a tricycle pedals through 1 revolution of the front wheel, the tricycle moves forward 127cm (50 inches). Let's say that the kid is turning the front wheel at 1 revolution per second. That means that the tricycle is moving forward 127cm per second. That is only 4.5 kilometres per hour (2.8 mph)!

Activity Instructions:

With your class or family, take a look at any bicycle and answer the following:

- What is the diameter and circumference of its wheels?
- When you pedal one full revolution how far does the bike travel?
- How far do you think you could travel on your bike in one hour?

Can you believe THIS is math?