

# Order-of-Magnitude Estimation

## Bird Speed (Level 1)

### **The Question**

On average, how fast is a migratory bird moving?

### **Background**

Many birds migrate south in the winter (in the northern hemisphere) and north in the summer. This requires a lot of flying! These birds of course aren't always moving, so what is the average speed of a bird over the course of a year, including moving and stopped time?

### **The Solution**

## Education Standards

This OoM Estimation problems meets the following standards in **bold**:  
*Next Generation Science Standards (NGSS)*:

- Physical Sciences
  - Matter & Its Interactions
  - **Motion and Stability: Forces and Interactions**
  - Energy
  - Waves and Their Applications in Technologies for Information Transfer
- Life Sciences
  - From Molecules to Organisms: Structures and Processes
  - Ecosystems: Interactions, Energy, and Dynamics
  - Heredity: Inheritance and Variation of Traits
  - Biological Evolution: Unity and Diversity
- Earth and Space Sciences
  - Earth’s Place in the Universe
  - Earth’s Systems
  - Earth and Human Activity
- Engineering, Technology, and Applications of Science
  - Engineering Design

*Common Core Standards (CSS)*:

- **Counting & Cardinality**
- **Operations & Algebraic Thinking**
- **Numbers & Operations in Base Ten**
- **Number & Operations — Fractions**
- Measurement & Data
- **Geometry**
- Ratios & Proportional Relationships
- The Number System
- **Expressions & Equations**
- Functions
- Statistics & Probability