

2023A2**EDUCATION**

Level 1a: Whenever we have a group of students on site, we present them with a challenge. Can they reach the whole length of a blade if they all stand together, with their arms stretched out, touching at the fingertips? The blade is 142 feet long, so it is exciting to see when a large group comes close to measuring up to this challenge.

Let's say we have a group of 3rd grade students coming to our site. If the average wingspan of the students is 4.083 feet, how many of them would it take to reach from one end of the wind turbine blade to the other? Round to the nearest student.

To solve this problem, we need to divide the length of the blade by the average wingspan of the students.

$$\text{Number of students} = \frac{142 \text{ feet}}{4.083 \text{ feet}} = 34.778 \text{ students}$$

We can't have a partial student, so we'll round to the nearest student for an answer of **35 students** needed to reach from one end of the blade to the other.

Level 1b: Sometimes our tour guides like to get in on the fun too. If it takes 26 tour guides to reach from one end of the blade to the other end, what is the average wingspan of the tour guides?

To solve this problem, we can use the same concept as the above problem, but this time we divide the blade length by the number of tour guides.

$$\text{Average tour guide wingspan} = \frac{142 \text{ feet}}{26} = \mathbf{5.462 \text{ feet}}$$

Level 2: One Energy's Chef, Mike, is making cookies for a large group of students over the course of two days. On the first day there is a group of 75 students coming in. On the second day, a group of 68 students are coming in.

Chef's oven can handle a batch size of 12 cookies, and each batch takes 14 minutes to bake. It also takes Chef 10 seconds to decorate each cookie. How long will it take Chef to bake and decorate all the cookies?

To solve this word problem, we can create an equation for total time of baking and decorating cookies. Let's start by writing an equation for baking time.

$$\text{Baking time} = 14 \text{ minutes} \times \text{number of batches}$$

Then we can write an equation for decorating time.

$$\text{Decorating time} = 10 \text{ seconds} \times \text{number of cookies}$$

We can combine these two equations to create an equation for total time to make the cookies.

$$\text{Total time} = \text{Baking time} + \text{Decorating time}$$

$$\text{Total time} = 14 \text{ minutes} \times \text{number of batches} + 10 \text{ seconds} \times \text{number of cookies}$$

We can solve for the number of batches by dividing the total number of cookies by the number of cookies in a batch. And then the last thing we need to do is make sure our units of time match up, we'll use minutes.

$$\text{Total time} = \left(14 \text{ minutes} \times \frac{(75 + 68 \text{ cookies})}{12 \text{ cookies per batch}} \right) + \left(\frac{10}{60} \text{ minutes} \times (75 + 68 \text{ cookies}) \right)$$

$$\text{Total time} = 166.8 \text{ minutes} + 23.8 \text{ minutes}$$

$$\text{Total time} = \mathbf{190.6 \text{ minutes} = 3.2 \text{ hours}}$$