



CEMC at Home

Grade 11/12 - Wednesday, April 1, 2020

Collecting Pollen and Wood

Video

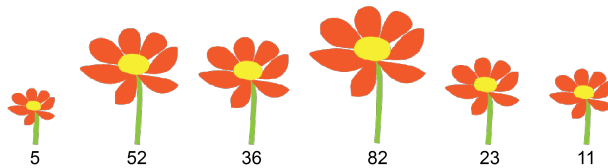
Watch the following presentation on algorithmic paradigms, based on two past problems from the [Beaver Computing Challenge](#):

https://youtu.be/XuR1a_9orJQ

The two problems discussed in the presentation are included below for your reference. Links to the two apps used in the video are also provided should you wish to do some exploration on your own.

Collecting Pollen

Beever the Bee flies to a field of flowers to collect pollen. On each flight Beever visits only one flower and can collect up to 10 mg of pollen. Beever may return to the same flower more than once. The field contains 6 flowers, each containing a different amount of pollen (in mg) as shown.



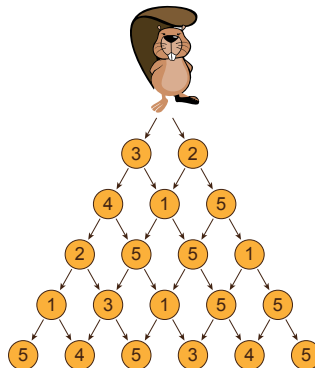
If Beever flies to the field 20 times, what is the maximum total amount of pollen Beever can collect?

Note: This problem was also given as a Grade 4/5/6 exercise last week, but our focus will be different. Our goal is not just to arrive at the answer to the problem, but rather to discuss the algorithm used to arrive at the optimal solution.

App for exploration: <https://www.geogebra.org/m/guzzeqn4>

Collecting Wood

A beaver collects wood while descending from a mountaintop. Each stop contains a different amount of wood as shown.



The beaver can only follow the arrows down. What is the maximum total amount of wood the beaver can collect?

App for exploration: <https://www.geogebra.org/m/nsmtks3u>