

A penny for your thoughts

Instructions for students

- Come up with your own definition for the expression “exponential growth” and explain it to an older member of your family. Include a sketch if you can.
- Other than a sketch, how else can exponential growth be modeled?
- In this activity, you are asked to create a table (or to use a rule) to solve 2 different situations.

Materials required

1. device with Internet access (optional)
2. paper, pencil and calculator

Information for parents

The video links are helpful but optional

Suggestion: Once your son or daughter has completed the task, have him/her ask **you** to make the 2 choices and then show you his/her solutions and explanations.

Choice # 1 How would you like to be paid?

Peter is hired to help a neighbor with yard work.

There are two payment options.

1. \$20 a week
2. A penny for the first day and the amount will double each day.

He will work every day for 2 weeks (14 days). Which payment option would you suggest Peter take?

			
Day 1	Day 2	Day 3	Day 4

Choice #2

Watch the [video](#) and make your choice.

Which would you rather have? A million dollars or a penny the first day, then doubled every day for a month?

Create a table or an equation to find the solution?

Challenge your parents. Which one do you think they will choose? Be ready with your explanation.

Choice # 1 Solution

Week 1	0.01	0.02	0.04	0.08	0.16	0.32	0.64
Week 2	1.28	2.56	5.12	10.24	20.48	40.96	81.92

Option A: \$40.00 Option B: \$81.92 Peter should choose option B

Choice # 2 Solution can be found on this [video](#) and to understand the rule, watch this [video](#).

If a month has 30 days, the pennies will add up to

\$5,368,709.12