

Grade 6 Mathematics – Understanding the Significance of Large Numbers

Grade 6: Number Sense and Numeration: - Quantity Relationships

Curriculum Expectation:

By the end of Grade 6, students will:

– solve problems that arise from real-life situations and that relate to the magnitude of whole numbers up to 1 000 000 (Sample problem: How would you determine if a person could live to be 1 000 000 hours old? Show your work.);

PART A Basic Understanding of Magnitude of Whole Numbers

- 1) a) If a chick is 48 hours old, how many days old is it?
- b) If a dog is 1 095 days old, how many years old is it?
- c) If a cat is 113 880 hours old, how many years old is it?

First determine, number of days old by dividing by 24, since there are 24 hours in one day.

Then, determine number of years old by dividing by 365, since there are 365 days in one year.

- 2) Determine how old you were in hours on your most recent birthday.
- 3) Can someone live to be 1 000 000 hours old? Show your work.
- 4) Ronald runs across Canada and records the total number of steps on his stepper app. He takes 13 042 000 steps and each step is about 0.5 m long. What is the distance in kilometers that he ran?



PART B The Basic Program

Create a program that:

- ✓ Asks the user how many years old they were on their last Birthday
- ✓ Calculates the approximate number of hours old they were on their last Birthday and outputs this information to the user

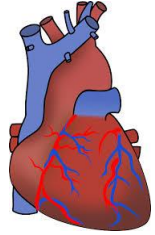
[Basic Program Link:](#)

<https://www.youtube.com/watch?v=o5cCRiOjJe4>

PART C The Challenge Program

Create a program that:

- ✓ Tells the user the program will calculate how many litres of blood their heart will pump over a given period of time
 - ✓ Asks the user for the number of days they would like to know the amount of blood their heart will pump
 - ✓ Calculates the approximate amount of blood in litres their heart will pump for the number of days indicated by the user and outputs this information
- NOTE: An average adult heart pumps about 280 L per hour



[Possible Challenge Program Answer Link:](https://www.youtube.com/watch?v=yjUBM6o7mok)

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PART D Further Extensions

Create programs or add to your current programs:

- ✓ Ask the user for the number of years old they are and the number of months since their last Birthday. Calculate the number of hours old they are and the amount of blood (in litres) that their heart has pumped in their lifetime.
- ✓ If the length of each of Joe's steps is about 0.5 m and he walks across Canada, how many steps will it take? Calculate the same information for each province. Adjust the program to allow the user to indicate the length of their step.
- ✓ If a tower as high as the CN tower is built using Lego blocks, how many Lego blocks would be needed?
- ✓ How many football fields would span the circumference of Earth?

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