

Lesson 9 – Mathematical Games

Project 8. Reciting a Table of any Number

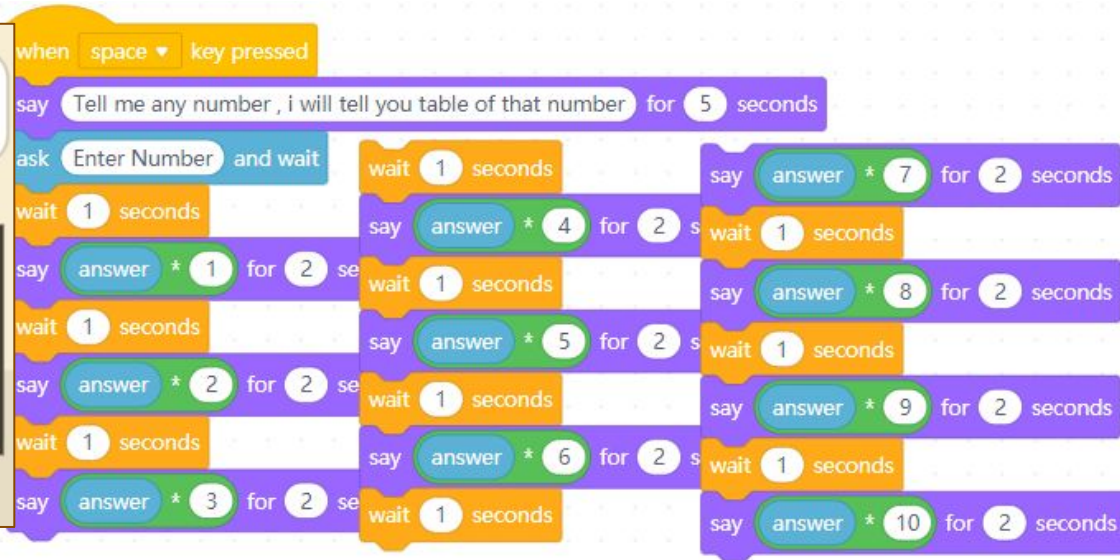
Story is: **One**

student is a master
in reciting tables.

He comes forward &
asks for any number
Integer of float, big or
Small, he recites
the table correctly.

Code as shown.

Place below one another.



Project 6. Making a Number App.

Basic story is simple.

A student asks you to give her five numbers.

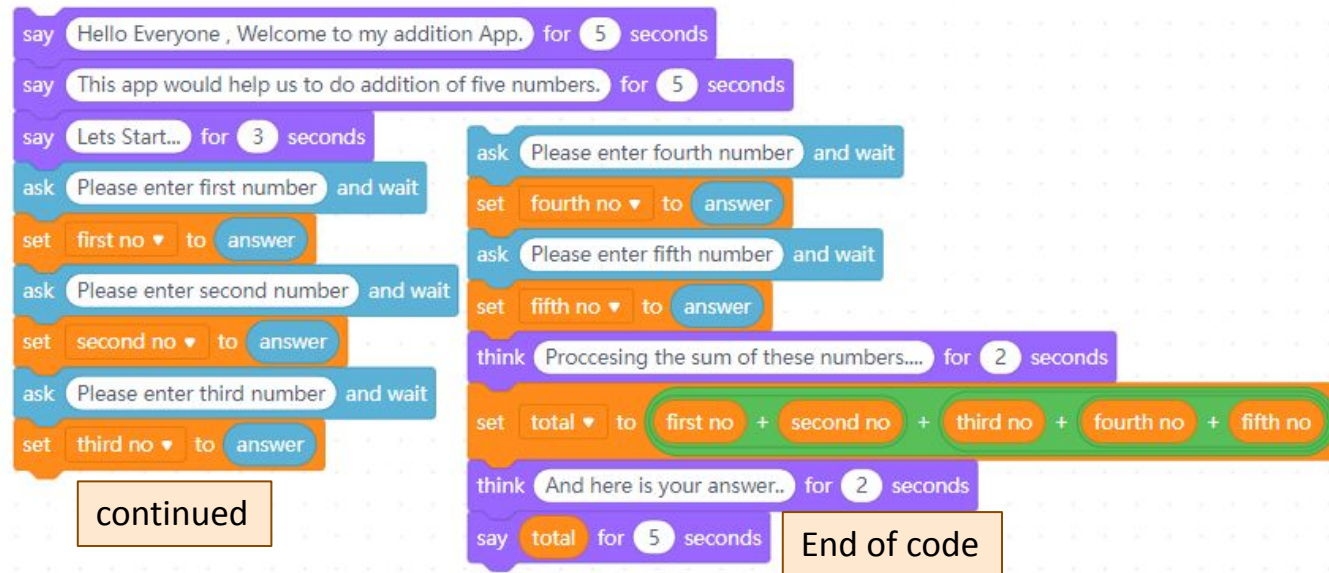
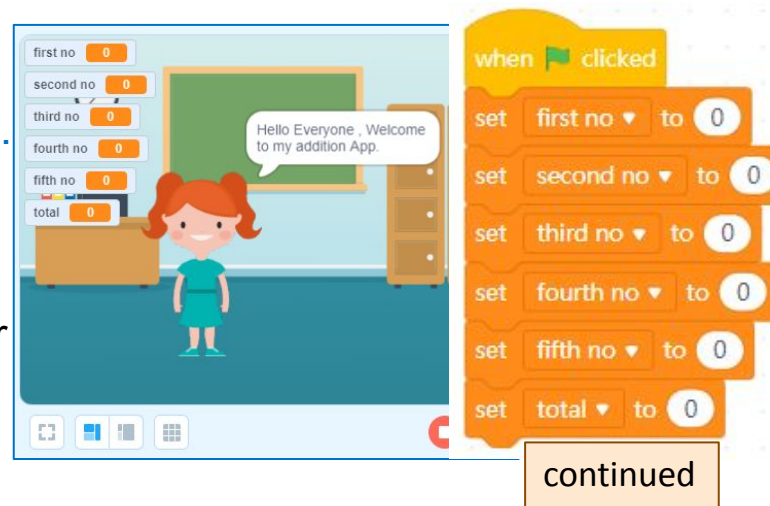
These could be integers or floats or a mix.

She will calculate & give the answer.

Code as shown in three continued parts.

Place the three code sets below one another for getting the full code. Try it out.

Now make changes as per your own Imagination to create variations.



Operations with Numbers & Coding

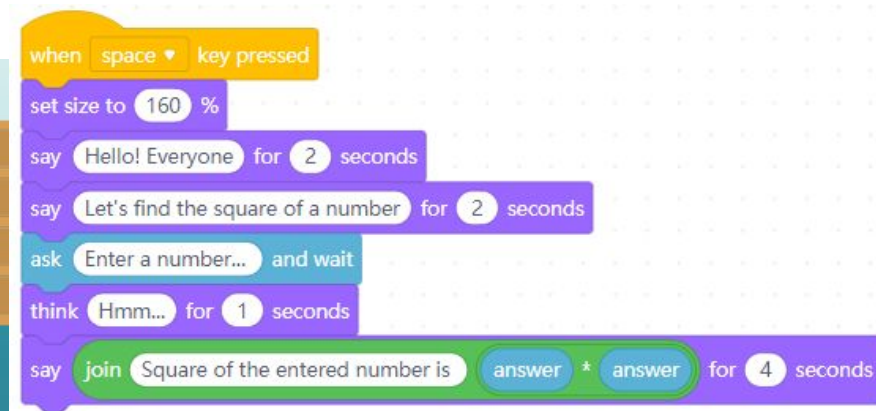
Project 9. Square of a Number

Story is: One student takes the Challenge of telling square of any number.

The project is simple.

First try doing it yourself.

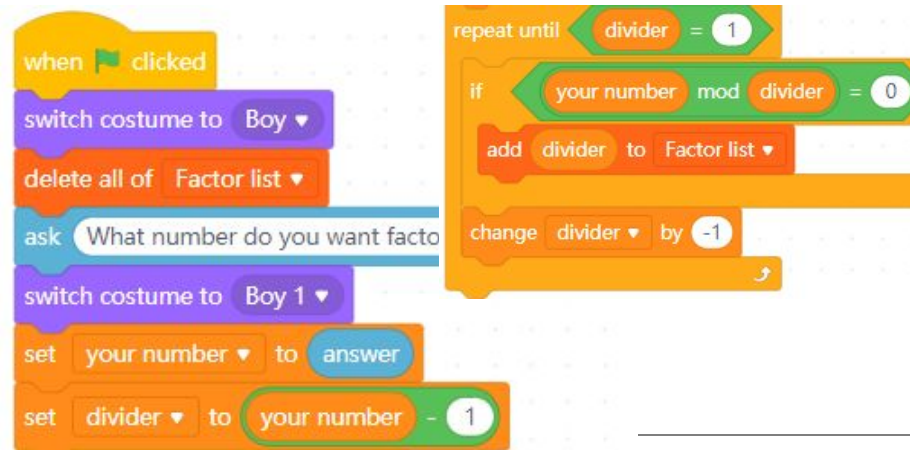
If you get stuck, see the Code.



Project 10. Factors of a Number (say 357)

Story is: One student is expert in telling Factors. Give him Any number.

The project is simple. Try it yourself. See Code if stuck. Place below one another.



Project 11. Finding Prime Numbers (761)

Story is: One student is good at prime numbers.

You need to make These Variables. Try yourself. See Code if stuck. Place below one another.

Make a Variable

☐ Divider

☒ Test Number

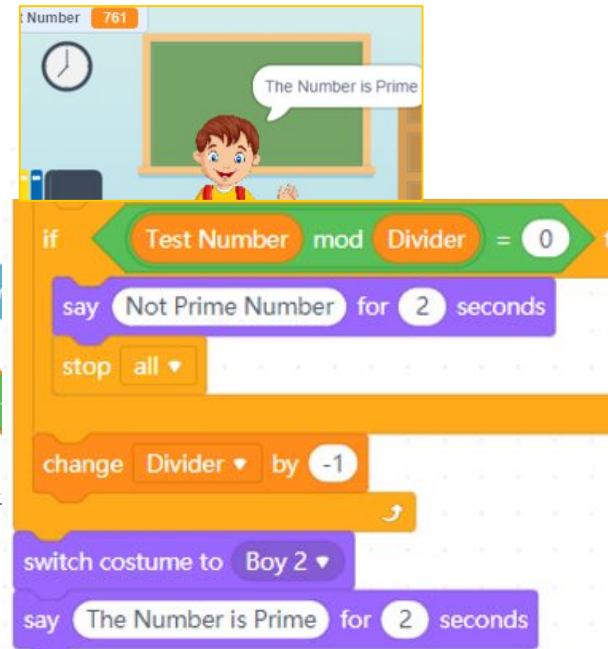
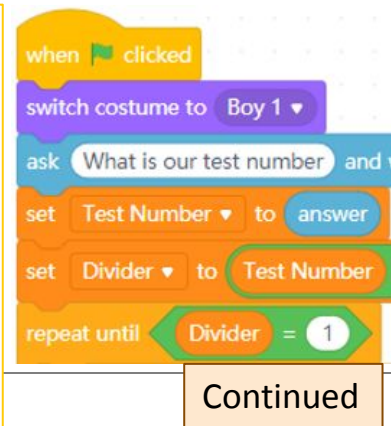
set Divider ▼ to 0

change Divider ▼ by 1

show variable Divider ▼

hide variable Divider ▼

Make a List



Project 12. Coding and Geometry - Finding Area of a Triangle.

Story is:

Today's maths period was on finding the area of a triangle.

The teacher is absent.

One student is taking the class.

You need to code the process.

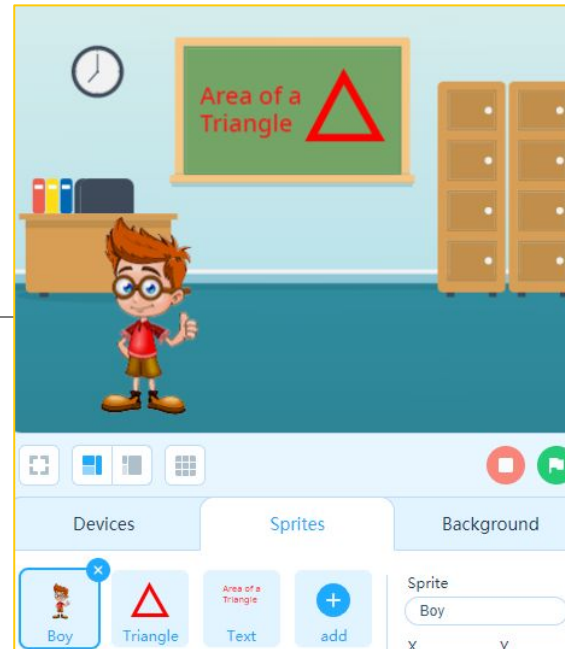
The project requires three sprites:

- The student.
- Triangle (does not require code).
- Text (does not require code).

Coding method includes three main steps:

- Asking for the base in cm.
- Asking for the height in cm.
- Displaying the area in the triangle in cm.

Coding procedure for **other geometric figures** is similar. **Try them yourself.**



Coding Steps 1.

Introductory explanation by the Student as though he is explaining to the class.



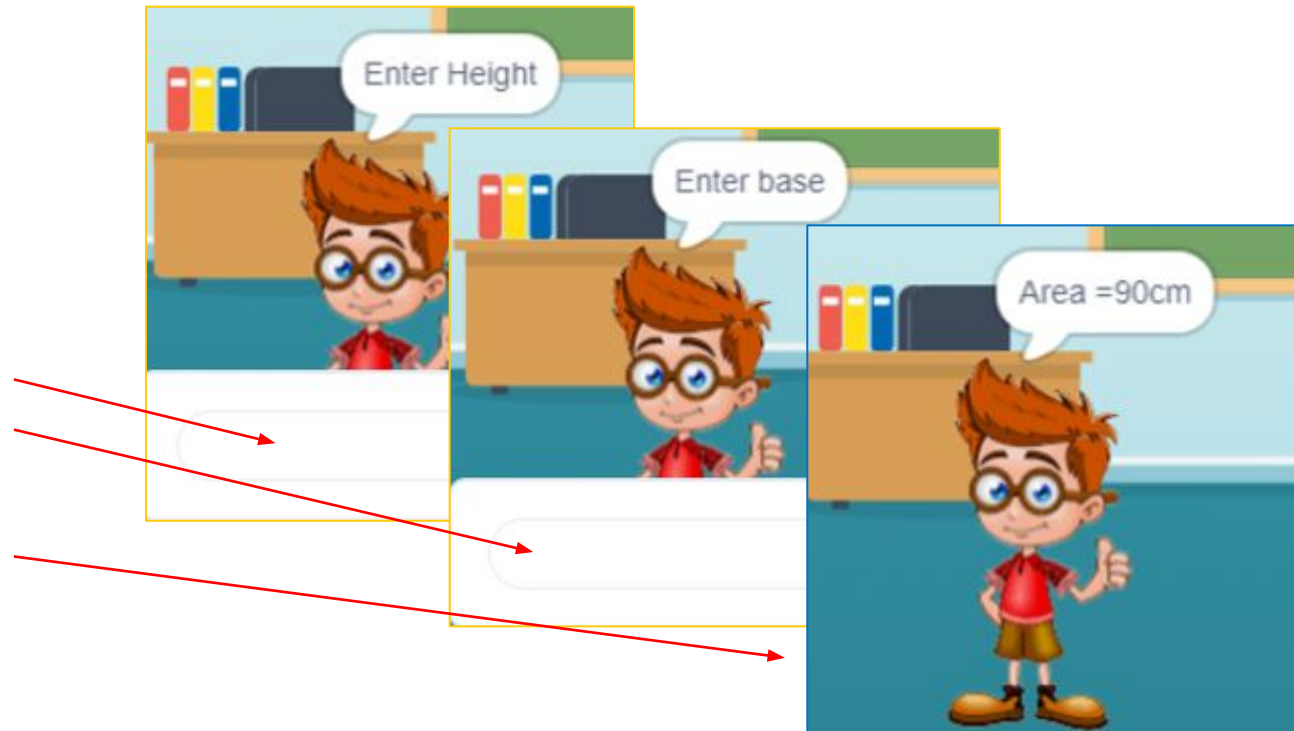
Coding Steps 2.

Execution:

Enter height say 15.

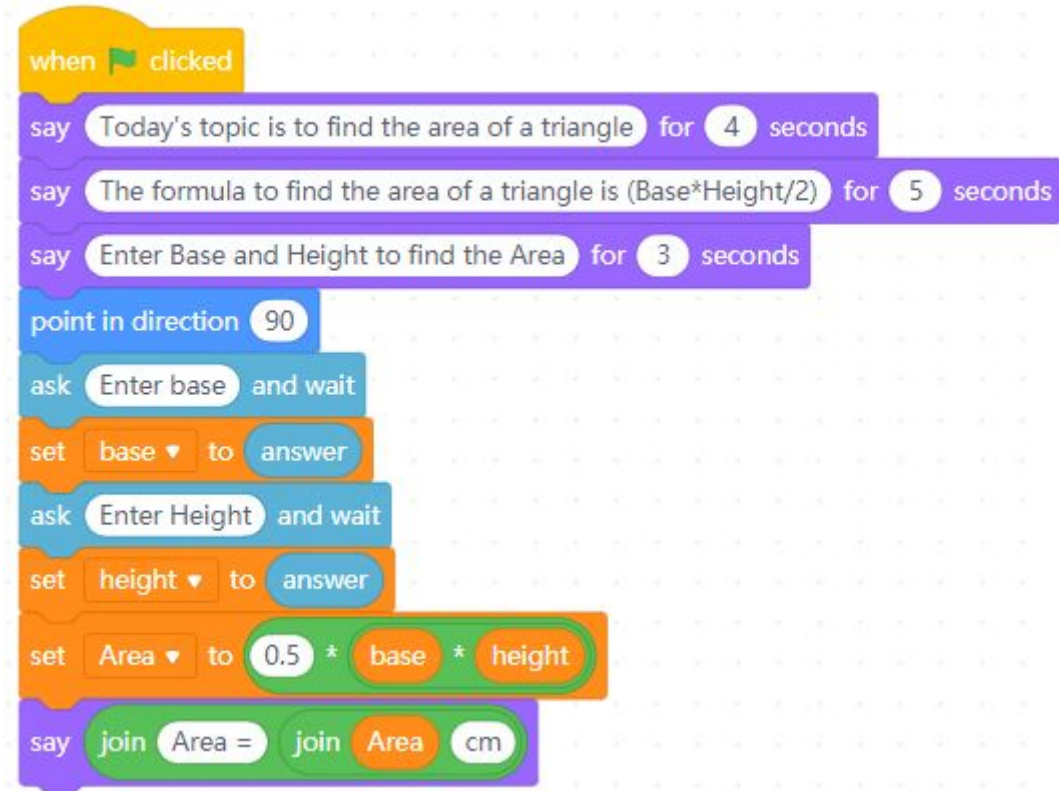
Enter base say 12.

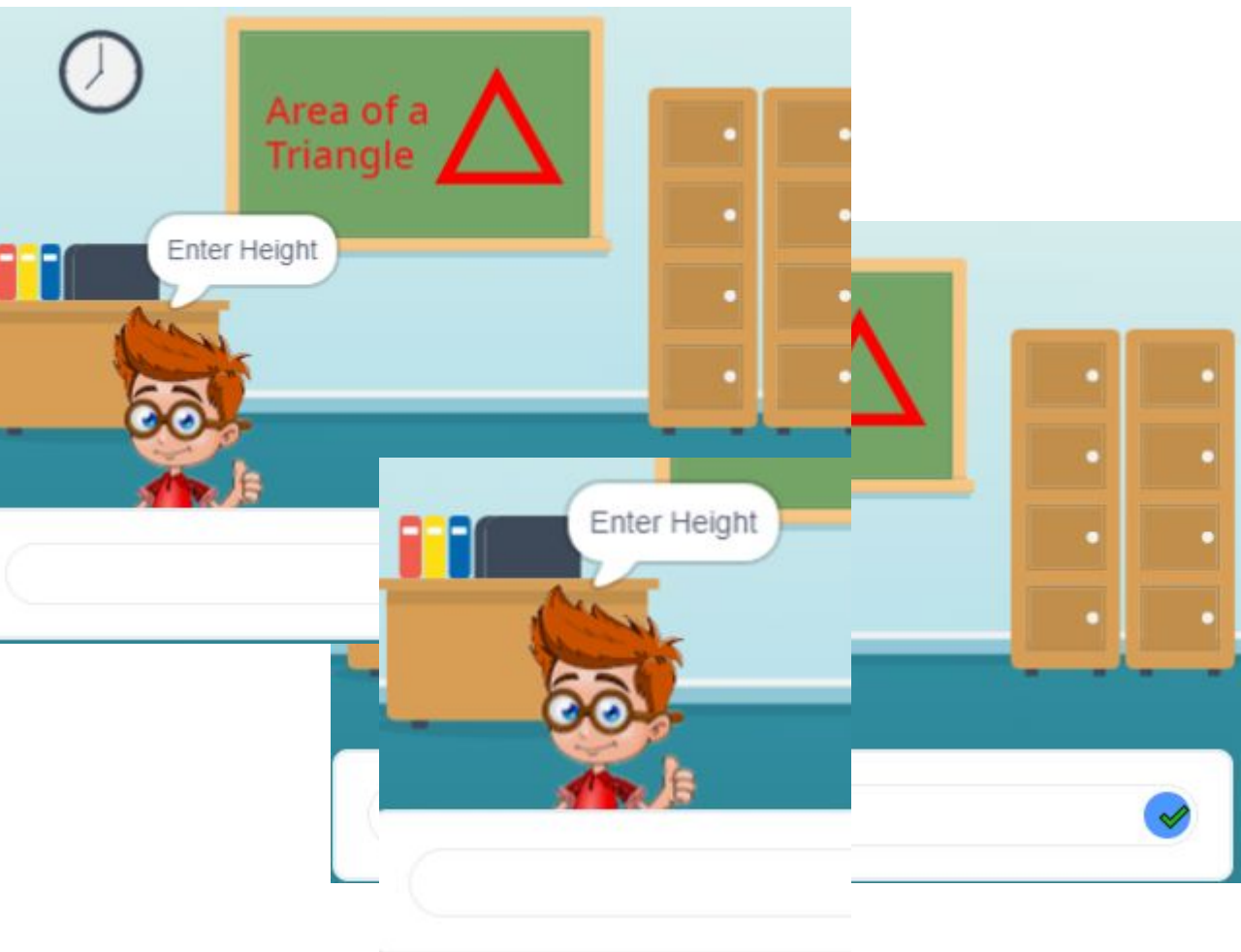
Result is displayed



Try out different mathematical calculations in a similar manner
The key is in making the steps & the story

Project Code





Now let us apply maths to work for us
This is to give you ideas to do higher level Maths Projects yourself

Project 13 – Coding, Maths & Physics - Weight on Moon.

The story line of this project is – **You have gone to the moon along with mBot. While walking you decide to have some fun with mBot and ask him “Can you tell what would be my weight here”. You are surprised. mBot tells the correct answer.**

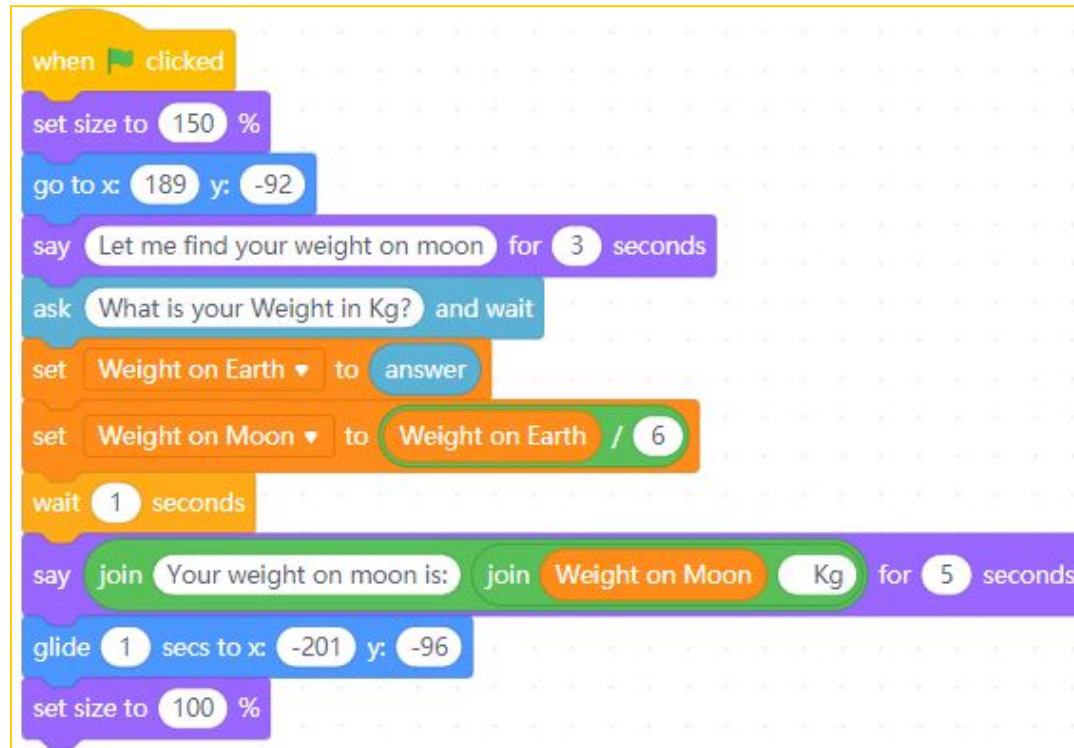
There could be many such projects. Think and Try or contact us.

Project Planning & Code.

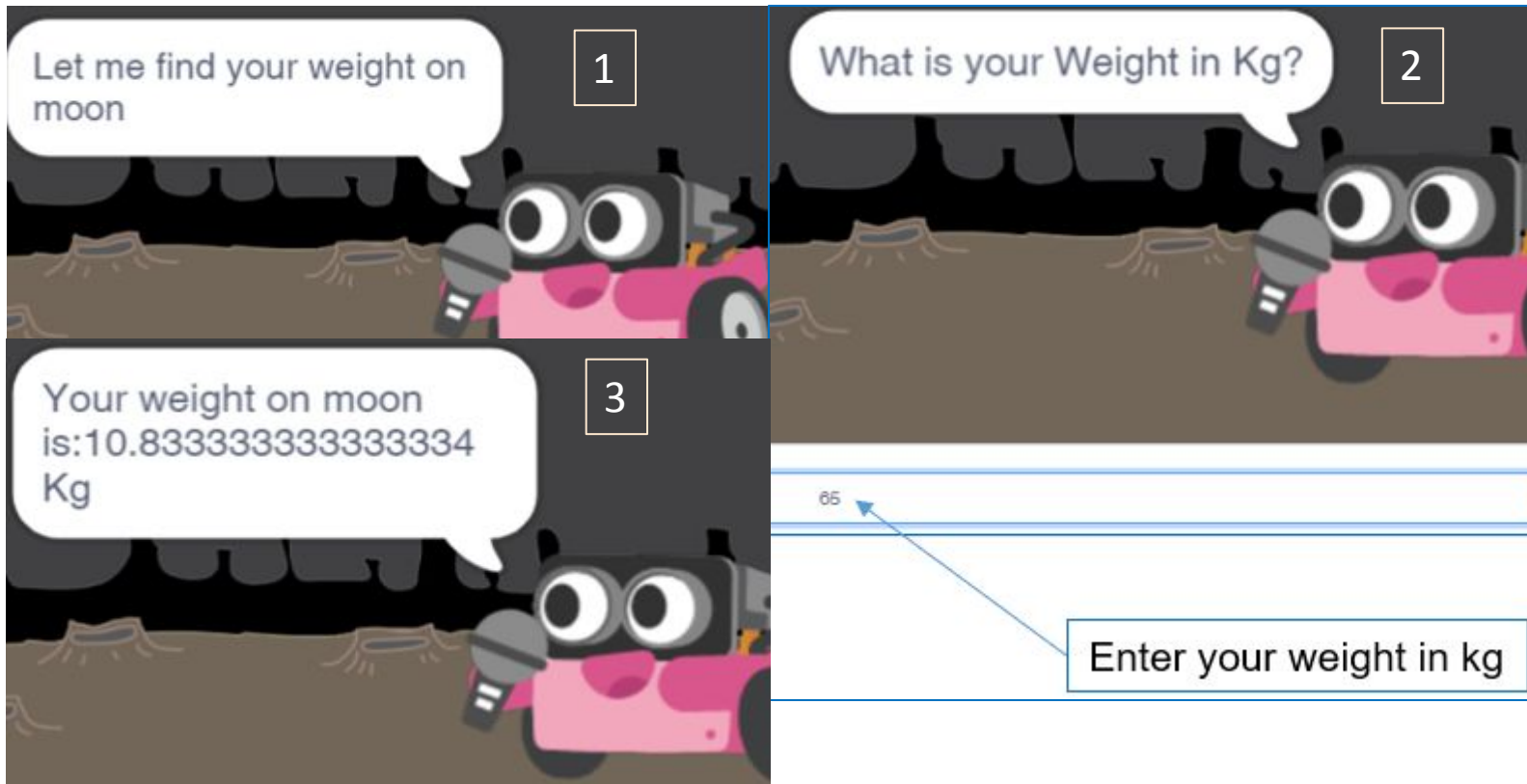
Gravity on moon is $\frac{1}{6}$ th of the gravity on earth. Thus weight of anything will decrease to $\frac{1}{6}$ times of that on earth.

Use mBlock 5 to get the weight on moon.

Use the “Variable block” to create variables & "Operators block" to get to the math and text operations you need.



Project View.



Project 14 - Solving Maths Problems through Code.

Once we have learnt the basic of maths we are taught how to solve mathematical problems. We start with easy problems and migrate to more difficult. However we do not realise that the basic procedure for the difficult, is as easy as for the easy ones.


For coding both are equally easy. Let us start with an easy one.

Project Planning & Code.

A typical problem could be: “Three years back Jerry was twice as old as Tom. If Tom is 10 today, how old is Jerry?”

You may find this difficult but for Scratch it is simple.

Use mBlock 5 to complete this program. Use the “Variable block” to create variables and use the "Operators block" to get access to the math and text operations you need.

when  clicked

set size to 150 %

go to x: -138 y: -80

say Tom is twice as old as Jerry was three years ago for 5 s

say Tell me Jerry's age and i'll get Tom;s for 3 seconds

ask How old is Jerry? and wait

set Jerry's age ▼ to answer

set 3years ago ▼ to answer - 3

set 3years ago ▼ to 3years ago * 2

set Tom's age ▼ to 3years ago

say join Tom's age is: Tom's age for 2 seconds

glide 1 secs to x: 260 y: -72

set size to 100 %

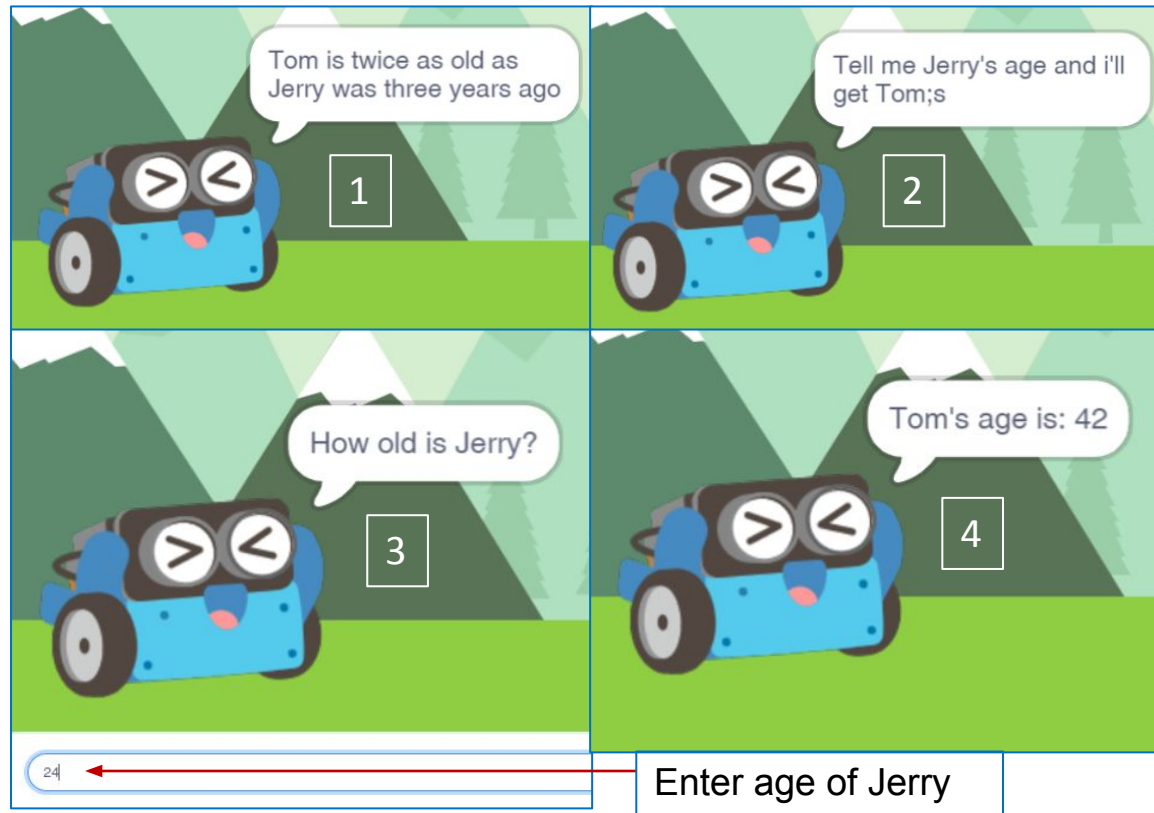
Now take similar mathematical problems from your book and try coding them

In case of problems contact: mycodingquery@codingforyou.in

When you do this in Python, You will love it even more

Covered in vol 2 of this book series

Project View.





Code Karega India Badhega