Stations or Centres for Cross-Curricular – Algorithms

As a centre activity (to teach them coding concepts):

Have titles at each station (e.g. Math, Dance, Music, Geography, PhysEd) and students pick 3 or 4 out of the total to complete (based on their interest).

As a station (or flash cards) activity:

As a station activity (when expectation is that students need to learn all concepts for one topic… e.g. math), then students complete all Math stations (since every math station covers a different expectation)… titles would be “Math # 1, Math # 2.

Dance

You be the Sprite… Do what the code says!

Can your group do it in sync?

What dance is it similar to?

Loop 4 times

Put right hand on your right bum cheek

Wait 1 second

Put left hand on your left bum cheek

Wait 1 second

Shift hips to right

Wait .5 seconds

Shift hips to left

Wait .5 seconds

Jump and turn 90 degrees to right, move hands to front of body

Wait 2 seconds

End Loop

MUSIC

*Procedure **321***

Sing note E

Wait .25 seconds

Sing note D

Wait .25 seconds

Sing note C

Wait 1 second

End Procedure

Materials: music keyboard (use ipad), or someone who can sing notes

Can you sing the proper notes/rhythm?

What song is it?

Loop 2 times

*Call **321***

End Loop

Loop 4 times

Sing note C

Wait .25 seconds

End Loop

Loop 4 times

Sing note D

Wait .25 seconds)

End loop

*Call **321***

*The code for a procedure is only compiled if it is called.

Math

What is the value of ANSWER after this program runs?

Declare **Number1, Number2, Answer** As Variables

Make **Number1** = 5

Make **Number2** = 2

Make **Answer** = 0

If **Number1** > **Number2** *Then*

    Answer = **Number1** + **Number2**

Else

    Answer = 0

End If

Math

What will be displayed after the following program is run?

NOTE:

Sqrt → squareroot * → multiply ^ → exponent

Declare **Number1, Number2** As Variables

Make a List: **Answers**(1 to 5)

Make **Number1** = 36

Make **Number2** = 2

Make item **1** of **Answers** = sqrt(**Number1**)

Make item **2** of **Answers** = **Number1** + **Number2**

Make item **3** of **Answers** = **Number1** * **Number2**

Make item **4** of **Answers** = **Number2** ^ 2

Make item **5** of **Answers** = **Number1** / **Number2**

Display the values of **Answers(1 to 5)**

Math

What is the value of Area if the User types in 4 for Radius?

Use a calculator (on your phone or ipad)

Declare **Radius**, **Area** As Variables

Declare **pi** As Constant = 3.14

Output: "What is the value of the Radius?"

Make **Radius** = User Answer

Area = **pi** * **Radius** ^2

Geography

If the user enters 100 km^2 for the Area and 7500 for the Population, what will be displayed after the program is run?

Declare **Area**, **Population**, **PopDensity** As Variables

Output: "What is the area of land in kilometers squared?"

Make **Area** = User Answer

Output: "What is the population of people living in this area?"

Make **Population** = User Answer

PopDenisty = **Population**/**Area**

Output **PopDensity**, "people per km^2"

MATH/GRAPHICS

***Materials* – protractor**

Use your body to follow along and try to determine what shape is being drawn.

How many degrees *in total* did you turn?

Declare **Number, Degrees** As Variables

Number = 5

numDegrees = 120

Pen Down (draw as you move)

Loop 3 Times

Move **Number** Steps

Wait 1 second

Turn left **numDegrees** degrees

End Loop

Math

Indicate what will be displayed after each program is run.

What if the user types in 0 ?

Program 1

Declare **Counter** As Variable

Output: "What number would you like to start with?"

Make **Counter** = User Answer

Loop 4 times

    Counter = **Counter** + 2

    Output **Counter**

End Loop

Program 2

Declare **Counter** As Variable

Counter = 0

Number = 1

Loop 5 times

    Increase **Counter** By 1

    Number = **Number** * **Counter**

    Output **Number**

End Loop

Physical Education

What is the common name for this motion?

Can you change the code to make it a more challenging motion?

Loop 5 times

Jump Up with Arms Raised

Wait .25 seconds

Squat down, Hands on floor, Get in Push-Up/Plank Position

Wait .25 seconds

End Loop