Term: I
Session: 2023 – 2024

TNG
The Next Generation
School

Name: _____
Date: _____

I. Create a program for a rabbit, lion and zebra racing through the woods. All three animals must go to their starting positions and start the race when any key is pressed.

Algorithm M is for the Rabbit

Algorithm M	
Step	Instruction
1	Start program when any key is pressed
2	Set Rabbit's position to x = –190, y = –140
3	Switch costume to rabbit-a
4	Wait 1 second
5	Move 100 steps
6	Switch costume to rabbit-b
7	Wait 1 second
8	Move 100 steps
9	Switch costume to rabbit-a
10	Wait 1 second
11	Move 100 steps
12	Switch costume to rabbit-b
13	Wait 1 second
14	Move 100 steps
15	Switch costume to rabbit-a
16	Stop program

Algorithm N is for the Lion

Algorithm N	
Step	Instruction
1	Start program when any key is pressed
2	Set Lion's position to x = –210, y = –60
3	Switch costume to lion-a
4	Wait 1 second
5	Move 200 steps
6	Switch costume to lion-b
7	Wait 1 second
8	Move 200 steps
9	Switch costume to lion-c
10	Stop program

Algorithm O is for the Zebra

Algorithm O	
Step	Instruction
1	Start program when any key is pressed
2	Set Zebra's position to x = –200, y = 10
3	Switch costume to zebra-b
4	Wait 1 second
5	Move 125 steps
6	Switch costume to zebra-a
7	Wait 1 second
8	Move 125 steps
9	Switch costume to zebra-b
10	Wait 1 second
11	Move 150 steps
12	Switch costume to zebra-a

1) Create a new project on Scratch and delete Sprite 1.

2) Select the Woods backdrop.

3) Select the Rabbit sprite.

4) In the programming area for the Rabbit sprite, add the code for Algorithm M.

5) Select the Lion sprite.

6) In the programming area for the Lion sprite, add the code for Algorithm N.

7) Select the Zebra sprite.

8) In the programming area for the Zebra sprite, add the code for Algorithm O.

9) Run the program. Press any key.

10) Which animal wins the race? _____

11) Which animals came 2nd and 3rd ? _____

12) Identify the steps in all three algorithms that move the sprites to their

starting position. _____

13) Identify the algorithm that is the most efficient for running the race.

_____

14) Rewrite Algorithm M to be more efficient.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____