CODING & ROBOTICS PRIMARY SCHOOL OLYMPIADS:

GRADES 4 - 7

E-mail: Info@saolympiads.co.za website: www.saolympiads.co.za

GRADE 4

DATE: 26 AUGUST 2025

TIME: 60 MINUTES

INSTRUCTIONS:

1. This booklet consists out of multiple-choice questions, true or false, computational questions, practical and problem-solving questions.
2. The total of this booklet is out of fifty marks.
3. You have 60 minutes for the paper.
4. Read the questions carefully before answering.
5. Visit the website: www.saolympiads.co.za.

NAME OF LEARNER:	
SCHOOL:	**GRADE:**

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SECTION A: MULTIPLE CHOICE QUESTIONS

1. What is an algorithm in programming? (1)

   A. A list of computer codes
   B. A detailed description of a computer
   C. A step-by-step procedure for solving a problem or performing a task
   D. A type of computer

2. Which device is used to input data into a computer? (1)

   A. Projector
   B. Scanner
   C. Monitor
   D. Speaker

3. Which of these is a programming language? (1)

   A. Monitor
   B. HTML
   C. Printer
   D. USB

4. What does ‘CPU’ stand for in computer terms? (1)

   A. Central Processing Unit
   B. Central Print Unit
   C. Central Programming Unit
   D. Central Power Unit

5. What is the main function of a robot's sensor. (1)

   A. To provide power
   B. To detect changes in the environment
   C. To make decisions
   D. To perform calculations

6. Which of the following is NOT an input device? (1)

   A. Keyboard
   B. Monitor
   C. Mouse
   D. Scanners

7. Binary code uses which two digits? (1)

   A. 0 and 1
   B. 1 and 2
   C. 0 and 2
   D. 1 and 3

8. Which term describes the brain of the computer? (1)

   A. Hard drive
   B. CPU
   C. Monitor
   D. Keyboard

9. What is the purpose of software in computers? (1)

   A. To perform specific tasks
   B. create hardware
   C. To store files physically
   D. To supply power

10. What is ‘coding’? (1)

    A. Repairing computers
    B. Writing programmes for devices
    C. Breaking computer passwords
    D. Designing computer hardware

11. Which of these is considered a high-level programming language? (1)

    A. Assembly
    B. Machine code
    C. Python
    D. Binary

12. What does 'HTML' stand for? (1)

    A. HighText Machine Language
    B. HyperText Markup Language
    C. HyperTool Making Language
    D. HighText Making Language

13. Which device outputs information from the computer? (1)

    A. Keyboard
    B. Mouse
    C. Monitor
    D. USB Stick

14. A programme in Scratch starts with which block? (1)

    A. A) When green flag clicked
    B. Forever
    C. Repeat
    D. Wait

15. What is the purpose of a loop in programming? (1)

    A. To stop the program
    B. To repeat a sequence of instructions
    C. To save data
    D. To output data

16. What is a variable in programming?

A. A type of robot
B. A storage location for data
C. A problem to solve
D. A list of commands

17. What action does the 'if statement' perform in coding?

A. Repeats a block of code
B. Makes a decision
C. Ends the programme
D. Starts the computer

18. Which of these is a benefit of using robots in manufacturing?

A. Increased production costs
B. Reduced accuracy
C. Increased efficiency
D. Decreased output

19. What is ‘debugging’ in programming?

A. Finding and fixing errors in the code
B. Removing unused files
C. Cleaning the computer
D. Upgrading the software

20. What does 'RAM' stand for?

A. Readily Accessed Memory
B. Random Access Memory
C. Rapid Action Memory
D. Randomly Accessed Model

(20)

SECTION B: TRUE OR FALSE STATEMENTS

1. A sensor can be used in a robot to detect sounds. (1)

   A. True
   B. False

2. Coding is only used for creating video games and websites. (1)

   A. True
   B. False

3. A loop is a programming structure that repeats a sequence of instructions. (1)

   A. True
   B. False

4. HTML is used to programe microcontrollers. (1)

   A. True
   B. False

5. Robots can only perform tasks that are programmed by humans. (1)

   A. True
   B. False

(5)

SECTION C: COMPUTATIONAL

1. Create an algorithm in Scratch where a sprite moves in a random pattern on the screen without crossing the edges. Detail the steps and Scratch blocks you would use. (5)

'Forever' block	'Turn (pick random -180 to 180) degrees' block
'If on edge, bounce' block	'Move (10) steps' block
	'When green flag clicked' block

2. Design a simple game where a sprite jumps over an obstacle when the spacebar is pressed. Write down the steps in order. (5)

'When green flag clicked' block	'Change y by (-10)' block
'Wait (0.1) seconds' block	'When space key pressed' block
'Change y by (10)' block	

(10)

SECTION D: PRACTICAL APPLICATION AND PROBLEM SOLVING

1. In a Scratch project, program a robot sprite to navigate through a maze. The robot should turn right whenever it touches the maze walls. Write down the steps in order. (7)

'Forever' block	'When green flag clicked' block
'Touching colour [colour of maze walls]' block	'Move (10) steps' block
'Wait (0.1) seconds' block	'Turn (90 degrees) right' block
'If-then' block	

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2. In a Scratch project, create an animation where a sprite moves in a circle continuously when the 'S' key is pressed. Order the blocks you would use to implement this feature. (8)

'Forever' block	'When 'S' key pressed' block
'Turn (15 degrees) right' block	'When green flag clicked' block
'Move (10) steps' block	'Wait (0.1) seconds' block
'Set rotation style [left-right]' block	'Go to x:0 y:0' block

TOTAL = 50 MARKS