DigiVerse

Teacher's Resource Manual & Answer Key

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CONTENTS

1. More About a Computer

Subject: Computer

Duration (Periods): 2

Lesson Name: More About a Computer

Overview: Computer is a useful machine that helps us to complete many tasks. It saves a lot of our time and energy.

Prior Knowledge: The students are aware of the things that a computer can do.

Learning Outcomes:

At the end of the lesson, the student will be able to:
- define the working of a computer.
- list the places where computers are used.

Teaching Aids:
- https://www.youtube.com/watch?v=xxBxblDC5NU
- https://oakdome.com/k5/file-downloads/computer-lab-rules-the-essentials-in-pictures.php

Learning Segments:

LESSON LINK **Time:** 05 minutes **Purpose:** Brief introduction/discussion to pique students' interest.	Greet the class and introduce the topic: • Computers can complete many tasks quickly. • Computers and humans work differently.
LESSON EXECUTION **Time:** 25 minutes **Purpose:** Engagement of both teacher and students to achieve the learning outcomes.	Period 1 • Explain the difference between the working of computers and humans. • Discuss the places where computers are used. • Ensure that the students have understood the topics. Clarify the doubts, if any. Period 2 • Read out the rubrics in the Skill Drill section and encourage the students to indulge in the task individually. • Ensure that each student has completed the task.
LESSON CLOSURE **Time:** 05 minutes **Purpose:** Summarising the key points and reinforcing the learning outcomes of the lesson.	• Discuss the answers to the questions. • Recapitulate the topics discussed in the lesson.

A. Identify and write the name of the following.
1. Laptop   2. Smartphone

B. Fill in the blanks using the words in the box.
1. mistakes   2. decisions   3. instructions   4. Tablet

C. Write T for True and F for False statements.
1. T   2. F   3. T   4. F

D. Answer the following questions.
1. We use a computer in banks for:
   - keeping a record of bank accounts.
   - depositing or taking money from bank account.
2. Humans and computers are different from each other in the following ways:

Humans	Computers
• Humans can get tired.	• Computers can never get tired.
• Humans do not need electricity to work.	• Computers need electricity to work.
• Humans can make mistakes.	• Computers do not make mistakes.
• Humans can take decisions on their own.	• Computers need instructions to work.
• Humans can perform only one task at a time.	• Computers can perform many tasks at a time.

3. Smartphone is an electronic device (gadget) that has a smaller screen than a tablet. We use a smartphone to make phone calls, watch videos, play games, etc.
4. We use computers in shops for:
   - preparing bills for sold items.
   - keeping records of the items in the shop.

2. IPO Cycle

Subject: Computer

Duration (Periods): 2

Lesson Name: IPO Cycle

Overview: A computer operates through the IPO cycle.

Prior Knowledge: The students are aware of the parts of a computer.

Learning Outcomes:

At the end of the lesson, the student will be able to:
- define the working of a computer.
- differentiate between input, processing and output devices.

Teaching Aids:
- https://www.youtube.com/watch?v=B9Sr6yy-z24
- https://www.slideshare.net/kp_abhinav/inputoutput-and-storage-devices

Learning Segments:

LESSON LINK **Time:** 05 minutes **Purpose:** Brief introduction/discussion to pique students' interest.	Greet the class and introduce the topic: • A computer system has three main units; input unit, processing unit and output unit.
LESSON EXECUTION **Time:** 25 minutes **Purpose:** Engagement of both teacher and students to achieve the learning outcomes.	Period 1 • Explain the IPO cycle to the students. • Discuss the input, processing and output devices. • Explain the meaning of storage devices. • Ensure that the students have understood the topics. Clarify the doubts, if any. Period 2 • Read out the rubrics in the Skill Drill section and encourage the students to indulge in the task individually. • Ensure that each student has completed the task.
LESSON CLOSURE **Time:** 05 minutes **Purpose:** Summarising the key points and reinforcing the learning outcomes of the lesson.	• Discuss the answers to the questions. • Recapitulate the topics discussed in the lesson.

Answer Key [Chapter 2]

A. Identify and write the name of the following.
    1. Monitor   2. Microphone

B. Fill in the blanks using the words in the box.
    1. CPU   2. three   3. brain   4. input

C. Write T for True and F for False statements.

1. T   2. F   3. F   4. T

D. Answer the following questions.

1. The device that is used to process data in a computer is known as the processing device.
2. A projector is an output device that displays the images generated by a computer screen onto a big screen, wall, curtain, etc.
3. A microphone is used to insert sound in a computer. It can be used to record different sounds.
4. Devices that are used to give data or information to the computer are known as input devices.

3. Using a Computer

Subject: Computer

Duration (Periods): 2

Lesson Name: Using a Computer

Overview: Learning the proper way to turn ON and turn OFF a computer.

Prior Knowledge: The students have seen the usage of a computer before.

Learning Outcomes:

At the end of the lesson, the student will be able to:
- start and shut down a computer.
- identify various elements on the Desktop.

Teaching Aids:
- https://www.youtube.com/watch?v=BlGvrlQCd9c
- https://www.slideshare.net/QueenieElumbaring/basic-parts-of-a-desktop

Learning Segments:

LESSON LINK	Greet the class and introduce the topic:
Time: 05 minutes **Purpose:** Brief introduction/discussion to pique students' interest.	• We follow some simple steps to start and shut down a computer. • Desktop is the main screen of the computer.

LESSON EXECUTION **Time:** 25 minutes **Purpose:** Engagement of both teacher and students to achieve the learning outcomes.	<u>Period 1</u> • Demonstrate the steps to start a computer. • Discuss the various elements on the Desktop screen such as Taskbar and icons. • Ensure that the students have understood the topics. Clarify the doubts, if any. <u>Period 2</u> • Read out the rubrics in the Skill Drill section and encourage the students to indulge in the task individually. • Ensure that each student has completed the task.
LESSON CLOSURE **Time:** 05 minutes **Purpose:** Summarising the key points and reinforcing the learning outcomes of the lesson.	• Discuss the answers to the questions. • Recapitulate the topics discussed in the lesson.

Answer Key [Chapter 3]

A. Fill in the blanks using the words in the box.
   1. icon   2. Desktop   3. bottom   4. Start

B. Write T for True and F for False statements.
   1. T   2. F   3. F   4. T

C. Answer the following questions.
   1. The steps to start the computer are:
      • Switch ON the main power supply button.
      • Press the power button on the UPS (Uninterruptible Power Supply).
      • Press the power button on the CPU.
      • Press the power button on the monitor. The computer will turn ON and we will see the Windows 10 welcome screen.
   2. Taskbar is the long horizontal bar that is located at the bottom of the Desktop screen. It contains the Start button, opened programs and other options such as Volume, Date and Time, Internet, etc.
   3. The steps to shut down the computer are:
      • Click on the Start button. The Start menu will appear.
      • Click on the Power button. A menu will appear.
      • Click on the Shut down button.
      • Switch OFF the monitor.
      • Switch OFF the UPS.
      • Switch OFF the main power supply button.

4. Using a Mouse

Subject: Computer

Duration (Periods): 2

Lesson Name: Using a Mouse

Overview: Learning the different types and uses of a computer mouse.

Prior Knowledge: The students are aware of the computer mouse and its parts.

Learning Outcomes:

At the end of the lesson, the student will be able to:
- hold a computer mouse properly.
- use a mouse to perform various tasks on the computer such as click, scroll, drag, etc.

Teaching Aids:
- https://www.wikihow.com/Use-a-Computer-Mouse
- https://techmechtips.blogspot.com/2022/06/mouse-types-technology-function-and.html

Learning Segments:

LESSON LINK **Time:** 05 minutes **Purpose:** Brief introduction/ discussion to pique students' interest.	Greet the class and introduce the topic: • A computer mouse is used to give instructions to the computer. • We can perform various tasks on the computer by using a mouse.
LESSON EXECUTION **Time:** 25 minutes **Purpose:** Engagement of both teacher and students to achieve the learning outcomes.	<u>Period 1</u> • Discuss the uses of a computer mouse. • Introduce the students to the types of mouse, i.e., Optical and Wireless mouse. • Demonstrate the proper way to hold a mouse. • Discuss the different types of mouse clicks. <u>Period 2</u> • Read out the rubrics in the Skill Drill section and encourage the students to indulge in the task individually. • Ensure that each student has completed the task.
LESSON CLOSURE **Time:** 05 minutes **Purpose:** Summarising the key points and reinforcing the learning outcomes of the lesson.	• Discuss the answers to the questions. • Recapitulate the topics discussed in the lesson.

A. Identify and write the name of the following.
    1. Drag   2. Scroll

B. Fill in the blanks using the words in the box.
    1. left   2. pointer   3. mouse pad   4. menu

C. Write T for True and F for False statements.
    1. T   2. F   3. F   4. T

D. Answer the following questions.
    1. A computer mouse is used to perform things on the computer. We can use it to select or draw on the computer screen.
    2. The uses of a computer mouse are:
        - giving instructions to the computer.
        - selecting things on the computer screen.
        - drawing pictures on the computer screen.
        - playing games on the computer.
    3. We press and release the left button on the mouse to click. We click to select an icon or item on the screen.
    4. We keep pressing the left mouse button and then move it across the screen, this is called dragging.

5. Keyboard Keys

Subject: Computer

Duration (Periods): 2

Lesson Name: Keyboard Keys

Overview: A keyboard has different keys that are used to type letters, numbers or symbols on the computer screen.

Prior Knowledge: The students are aware of the computer mouse and its parts.

Learning Outcomes:

At the end of the lesson, the student will be able to:
- recognise different keys on the keyboard and their functions.
- use symbol keys on the keyboard.

Teaching Aids:
- https://www.wikihow.com/Use-a-Computer-Keyboard
- https://i.pinimg.com/originals/34/b2/0c/34b20c052dfd2424db481ff57bebe991.jpg

Learning Segments:

LESSON LINK **Time:** 05 minutes **Purpose:** Brief introduction/discussion to pique students' interest.	Greet the class and introduce the topic: • A keyboard has 104 keys on it. • There are three types of keys; alphabet keys, number keys and special keys.
LESSON EXECUTION **Time:** 25 minutes **Purpose:** Engagement of both teacher and students to achieve the learning outcomes.	<u>Period 1</u> • Demonstrate the usage of a keyboard. • Encourage the students to type letters, numbers and symbols using the different types of keys. • Ensure that the students have understood the topics. Clarify the doubts, if any. <u>Period 2</u> • Read out the rubrics in the Skill Drill section and encourage the students to indulge in the task individually. • Ensure that each student has completed the task.
LESSON CLOSURE **Time:** 05 minutes **Purpose:** Summarising the key points and reinforcing the learning outcomes of the lesson.	• Discuss the answers to the questions. • Recapitulate the topics discussed in the lesson.

Answer Key [Chapter 5]

A. Identify and write the name of the following.
1. Enter key
2. Arrow keys

B. Fill in the blanks using the words in the box.
1. 26
2. Cursor
3. two
4. Shift

C. Write T for True and F for False statements.
1. F
2. F
3. F
4. T

D. Answer the following questions.
1. A keyboard is a device that is used to type words, letters, numbers or symbols on a computer screen. It has 104 keys on it.
2. Symbol keys are those keys which have symbols written on them. We can type the symbols with the help of the Shift key.

3. Backspace key is used to erase words, numbers or symbols typed on the computer screen.
4. A cursor is a small blinking line on the screen. It shows the place where the typed words, numbers or symbols will appear.

6. Using Paint

Subject: Computer

Duration (Periods): 2

Lesson Name: Using Paint

Overview: Paint is a drawing program that comes with Windows' computers.

Prior Knowledge: The students have used the Paint program.

Learning Outcomes:

At the end of the lesson, the student will be able to:
- use different tools to create drawings.
- add text in the Paint program.
- select, move and crop the drawings

Teaching Aids:
- https://www.thewindowsclub.com/add-text-and-change-color-in-ms-paint
- https://www.wikihow.com/Use-Microsoft-Paint-in-Windows#Creating-a-Shape

Learning Segments:

LESSON LINK **Time:** 05 minutes **Purpose:** Brief introduction/discussion to pique students' interest.	Greet the class and introduce the topic: • Paint program offers simple tools to draw pictures. • We can also add text to our drawings.
LESSON EXECUTION **Time:** 25 minutes **Purpose:** Engagement of both teacher and students to achieve the learning outcomes.	<u>Period 1</u> • Demonstrate the usage of various tools such as Pencil, Brushes, Text and Magnifier tools. • Demonstrate the ways to select, move or crop a drawing. • Demonstrate the method to change the foreground and background colour. <u>Period 2</u> • Read out the rubrics in the Skill Drill section and encourage the students to indulge in the task individually. • Ensure that each student has completed the task.

LESSON CLOSURE **Time:** 05 minutes **Purpose:** Summarising the key points and reinforcing the learning outcomes of the lesson.	• Discuss the answers to the questions. • Recapitulate the topics discussed in the lesson.

Answer Key [Chapter 6]

A. Identify and write the name of the following.
   1. Quick Access Toolbar
   2. Shapes group

B. Fill in the blanks using the words in the box.
   1. Cropping
   2. Freehand
   3. Selecting
   4. Delete

C. Write T for True and F for False statements.
   1. T
   2. F
   3. T
   4. F

D. Answer the following questions.
   1. The Magnifier tool is one of the tools in MS Paint software that is used to make the entire drawing or a part of the drawing bigger.
   2. The steps to use the Color Picker tool are:
      • On the Home tab, select the Color Picker tool from the Tools group.
      • Click on a drawing to pick its colour. The shape of the Color Picker tool will change into the Fill with color tool.
      • Now click on another drawing to change its colour into the colour picked by the Color Picker tool. The colour of the drawing will change.
   3. The different selection options in the Select menu are:
      • Rectangular selection is used to select a rectangular or square part of the drawing. We do so by dragging diagonally over the drawing to select it.
      • Free-form selection is used to select the drawing in a free or asymmetrical manner. We do so by dragging the mouse freehand over the parts of the drawing that we want to select.
      • Select all is used to select the entire drawing.
      • Delete is used to remove the selected drawing or a part of it.
   4. Brushes tool is used for freehand drawings.

7. Using Tux Paint

Subject: Computer

Duration (Periods): 2

Lesson Name: Using Tux Paint

Overview: Tux Paint is a free drawing software designed for young children.

Prior Knowledge: The students have used the Tux Paint software.

Learning Outcomes:

At the end of the lesson, the student will be able to:
- use different tools of Tux Paint.
- save and open files on Tux Paint.

Teaching Aids:
- https://www.yaclass.in/p/science-state-board/class-7/digital-painting-14085/tux-paint-and-tux-math-5870/re-a6fc8bb6-02a3-414c-b16a-d1fd9f36c6d0
- https://www.youtube.com/watch?v=Y3c_MJYzsw0

Learning Segments:

LESSON LINK **Time:** 05 minutes **Purpose:** Brief introduction/discussion to pique students' interest.	Greet the class and introduce the topic: • Tux Paint offers many tools to create drawings. • We can create drawings on the blank canvas.
LESSON EXECUTION **Time:** 25 minutes **Purpose:** Engagement of both teacher and students to achieve the learning outcomes.	Period 1 • Point out and explain the various tools of Tux Paint. • Demonstrate the usage of Text, Magic and Stamp tool. • Demonstrate the method to save and open a Tux Paint file. • Also, demonstrate the way to exit the Tux Paint program. Period 2 • Read out the rubrics in the Skill Drill section and encourage the students to indulge in the task individually. • Ensure that each student has completed the task.
LESSON CLOSURE **Time:** 05 minutes **Purpose:** Summarising the key points and reinforcing the learning outcomes of the lesson.	• Discuss the answers to the questions. • Recapitulate the topics discussed in the lesson.

A. Identify and write the name of the following.
    1. Open tool   2. Quit tool

B. Fill in the blanks using the words in the box.
    1. Drawing Canvas   2. Open   3. Selector   4. Colors
        Palette   Palette

C. Write T for True and F for False statements.
    1. T   2. T   3. T   4. F

D. Answer the following questions.
    1. Tux Paint is a software which provides a blank canvas where children can draw, use stamps, add colours and experiment with different tools to create drawings.
    2. Drawing Canvas is the largest area of the screen where we draw pictures.
    3. Magic tool is a tool available in the Tux Paint software which has many special effects that we can use in our drawings.
    4. Stamp tool is a Tux Paint software tool which has various stamps and stickers.

8. Reasoning and Analysis

Subject: Computer

Duration (Periods): 2

Lesson Name: Reasoning and Analysis

Overview: Improving reasoning and analysis through various techniques.

Prior Knowledge: The students can perform basic mathematics and are aware of directions.

Learning Outcomes:

At the end of the lesson, the student will be able to:
- solve number pyramids and number grids.
- identify different directions.

Teaching Aids:
- https://www.kidsacademy.mobi/worksheets-check/which-one-is-different-worksheet/
- https://www.megaworkbook.com/images/content/GeneralAptitude/Patterns/Color_ Patterns/Color_Pattern_Worksheet_03_Repeating_Patterns_AB_ABC_AABB_ABB.png

Learning Segments:

| LESSON LINK	Greet the class and introduce the topic:
Time: 05 minutes **Purpose:** Brief introduction/discussion to pique students' interest.	• We use reasoning and analysis to solve various problems. • To develop these skills we can indulge in activities that require analysis and reasoning.

| LESSON EXECUTION **Time:** 25 minutes **Purpose:** Engagement of both teacher and students to achieve the learning outcomes.	Period 1 • Explain the meaning of a number pyramid and demonstrate the ways to solve it. • Explain the meaning of a number grid and demonstrate the ways to solve it. • State and define the directions. Period 2 • Read out the rubrics in the Skill Drill section and encourage the students to indulge in the task individually. • Ensure that each student has completed the task.
LESSON CLOSURE **Time:** 05 minutes **Purpose:** Summarising the key points and reinforcing the learning outcomes of the lesson.	• Discuss the answers to the questions. • Recapitulate the topics discussed in the lesson.

Answer Key [Chapter 8]

A. Solve the number pyramids.
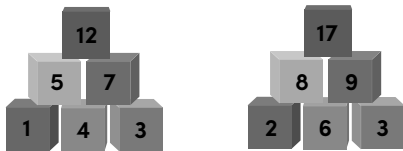
B. Solve the number puzzles.
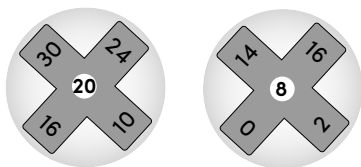
C. Label the directions in the given picture.
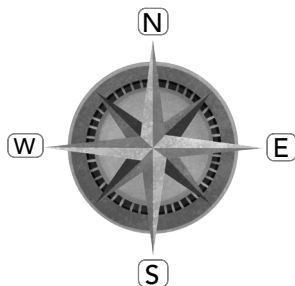
9. AI and Robots

Subject: Computer

Duration (Periods): 2

Lesson Name: AI and Robots

Overview: Artificial intelligence is the intelligence exhibited by machines.

Prior Knowledge: The students are familiar with the concept of natural and artificial things.

Learning Outcomes:

At the end of the lesson, the student will be able to:
- understand the concept of artificial intelligence.
- identify the artificial intelligence that is used in daily tasks.
- solve word puzzles.

Teaching Aids:
- https://www.superteacherworksheets.com/maps/mapskills-castle_WMZNQ.pdf
- https://www.superteacherworksheets.com/simple-machines/simple-machines-mini-book_WMTNF.pdf

Learning Segments:

LESSON LINK **Time:** 05 minutes **Purpose:** Brief introduction/discussion to pique students' interest.	Greet the class and introduce the topic: • Artificial things are those things which can be created by humans. • Artificial intelligence improves our performance in daily tasks.
LESSON EXECUTION **Time:** 25 minutes **Purpose:** Engagement of both teacher and students to achieve the learning outcomes.	Period 1 • Discuss the meaning of artificial intelligence. • Explain why a machine is considered artificially intelligent. • Discuss various AI technologies such as voice assistant, voice detection and navigation. • Describe the meaning of robots and the tasks that can be performed through robots. Period 2 • Read out the rubrics in the Skill Drill section and encourage the students to indulge in the task individually. • Ensure that each student has completed the task.

LESSON CLOSURE	• Discuss the answers to the questions.
Time: 05 minutes **Purpose:** Summarising the key points and reinforcing the learning outcomes of the lesson.	• Recapitulate the topics discussed in the lesson.

Answer Key [Chapter 9]

A. Fill in the blanks using the words in the box.

    1. Siri   2. Robots   3. navigation   4. Face detection

B. Answer the following questions.

    1. Artificial Intelligence refers to human-like intelligence shown by machines. AI is created using sets of instructions that humans create. The instructions are called programs.

    2. Voice assistant is an AI feature that can understand human commands with just an audio input in any language. It can perform tasks accordingly.

    3. A machine is considered artificially intelligent if it is able to:

        • understand human languages.

        • adapt to different situations.

        • take decisions.

        • process information.

    4. Robots are machines that do not need human interference to perform any task. We can use robots for cleaning, serving food, medical needs, industrial needs, etc.

Worksheet 1

A. Identify the following images.

    1. Smartphone   2. Microphone   3. Hard disk   4.   Laptop
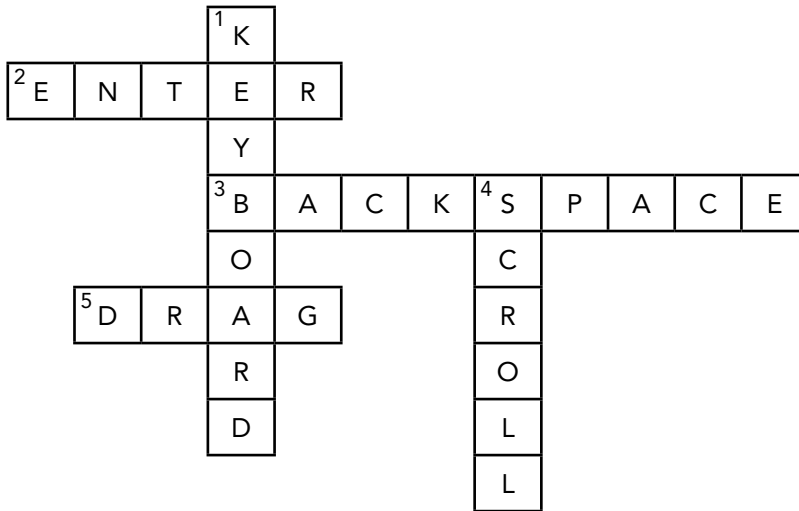
B. Solve the crossword with the help of the clues.
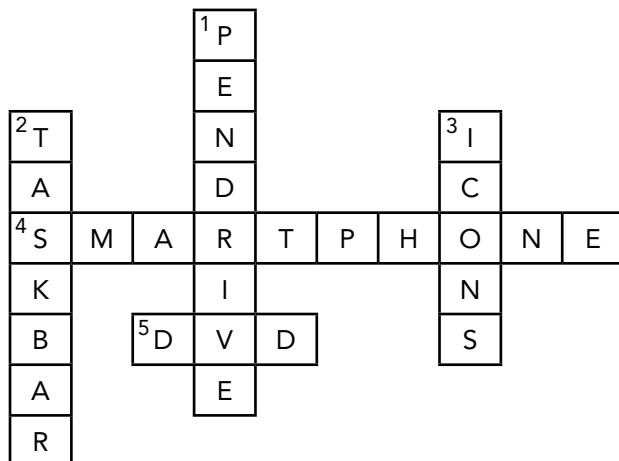
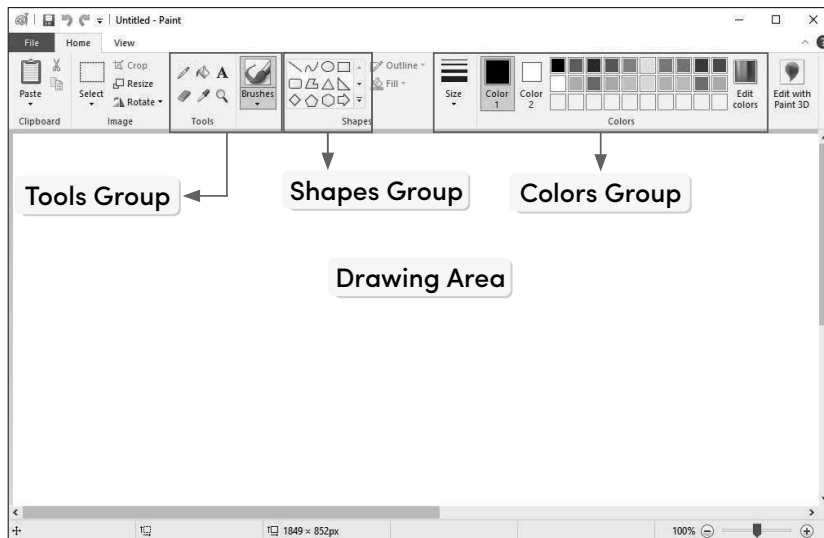A. Identify the following images.

1. Computer Mouse   2. Drag   3. Cursor   4. Enter Key

B. Solve the crossword with the help of the clues.

			¹K			⁴				
²E	N	T	E	R						
			Y							
			³B	A	C	K	⁴S	P	A	C	E
			O				C			
	⁵D	R	A	G			R			
			R				O			
			D				L			
							L			

A. Label the picture.

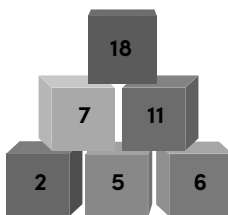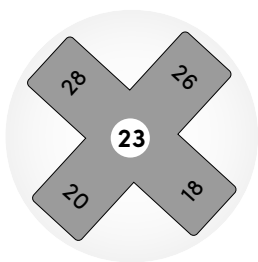Tools Group   Shapes Group   Colors Group

Drawing Area

B. Identify the Tux Paint icons.

1. Open tool   2. Magic tool   3. Lines tool   4. Save tool

Worksheet 4

A. Solve the following.

28   26   23   20   18

18   7   11   2   5   6

B. Write the uses of Robots.
   1. Cleaning   2. Serving food   3. Medical needs   4. Industrialneeds

C. State the forms of AI that we see around us on a daily basis.
   1. Voice Assistant   2. Face detection   3. Navigation

Test Paper 1

A. Fill in the blanks.
   1. Cursor   2. mouse pad   3. Taskbar   4. input
   5. Tablet

B. Write T for True and F for False statements.
   1. T   2. F   3. F   4. T
   5. F

C. Answer the following questions.
   1. We use computers in shops for:
      • preparing bills for sold items
      • keeping records of the items in the shop
   2. The devices that are used to give data or information to the computer are known as input devices.
   3. The steps to start a computer are:
      • Switch ON the main power supply button.
      • Press the power button on the UPS (Uninterruptible Power Supply).
      • Press the power button on the CPU.
      • Press the power button on the monitor. The computer will turn ON and we will see the Windows 10 welcome screen.

4. We use a computer mouse to do various things on the computer. Some of them are:
- giving instructions to the computer
- selecting things on the computer screen
- drawing pictures on the computer screen
- playing games on the computer

5. Symbol keys are those keys which have symbols written on them. We can type these symbols with the help of the Shift key.

Test Paper 2

A. Fill in the blanks.

1. Delete	2. Selector	3. number grid	4. Face detection

B. Write T for True and F for False statements.

1. F	2. T	3. F	4. T

C. Answer the following questions.
1. The different selection options in the Select menu are:
- Rectangular selection is used to select a rectangular or square part of the drawing. We do so by dragging diagonally over the drawing to select it.
- Free-form selection is used to select the drawing in a free or asymmetrical manner. We do so by dragging the mouse freehand over the parts of the drawing that we want to select.
- Select all is used to select the entire drawing.
- Delete is used to remove the selected drawing or a part of it.

2. Magic tool has many special effects that we can use in our drawings.
3. The number pyramid, each number is the sum of two numbers below it.
4. A machine is considered artificially intelligent if it is able to:
- understand human languages.
- adapt to different situations.
- take decisions.

National Cyber Olympiad

1. b.	2. a.	3. c.	4. b.	5. a.
6. b.	7. d.	8. a.	9. d.	10. c.