Republic of the Philippines
Department of Education
REGION III
SCHOOLS DIVISION OFFICE OF NUEVA ECIJA

LEARNING ACTIVITY SHEET
SPECIAL PROGRAM IN ICT 9
BASIC PROGRAMMING 9
First Quarter, Week 5

Name of Learner: _____

Grade Level /Section: _____ Date:_____

Create Different Types of Flowchart

BACKGROUND INFORMATION FOR LEARNERS

Did you know that flowchart is everywhere? Beyond computer programming, flowcharts have many uses in many various fields like education, sales and marketing, business, manufacturing, engineering and even in our daily activities.

Below is a quick example:

Let's say you are tasked to clean your room then you have to list down the instruction wherein you will be asked whether to dispose or save a thing. What will you do first?

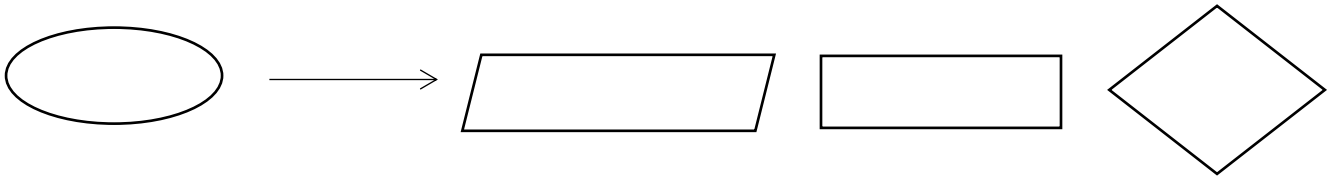
What have you observe with the following phrases below?

Ask yourself: "Do I need this item?" If the answer is No, then discard the item. End If the answer is Yes, then keep the item. Start Pick up an item.

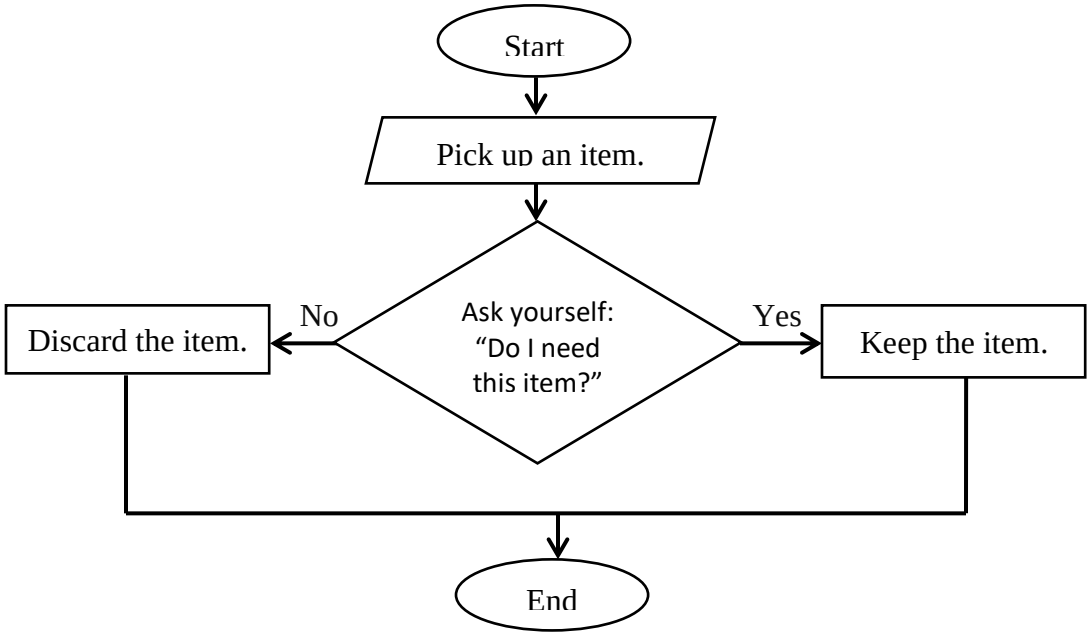
The following are the steps in cleaning your room but this is not arranged in chronological order.

Directions: Rewrite below in the empty box the step by step process in cleaning your room. The phrases to be filled in the box are given above.

What have you observed with the following shapes below? Is it related with the steps in cleaning your room? State your answer in 2-3 sentences on the space provided below.



This is an idea of step by step procedure on how to create a flowchart. A flowchart is the illustration showing the flow of a program.



Techniques in creating a flowchart

1. Determine the elements of the program such as input, process, storage, logical, and output.
2. Use appropriate symbols and arrowhead to show the flow of the program.
3. All symbols of the flowchart are joined with arrows.

4. Use easy words that can interpret even a novice programmer.
5. Each symbol should fill in the order of activities.
6. The execution of the flowchart is usually from uppermost to bottommost.
7. All flowcharts start and end with terminals symbol.

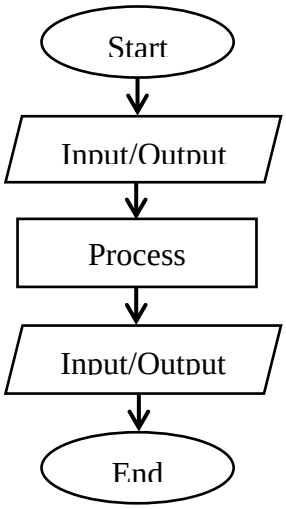
Types of Flowchart

The following are two types of flowchart according to use and application.

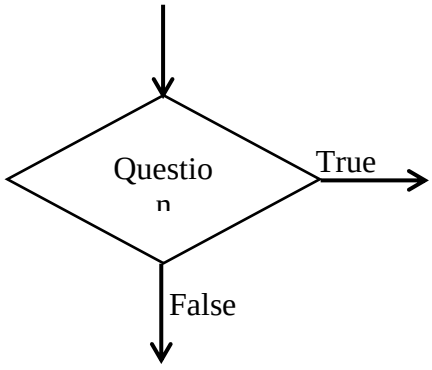
1. **System Flowchart** – it defines the order of procedures to do particular activity and the over-all flow of data inside the system.
2. **Program Flowchart** – also known as standard diagram. Displays the movement of program to answer the problems and create logical illustration of a program.

The following are the three types of control structures:

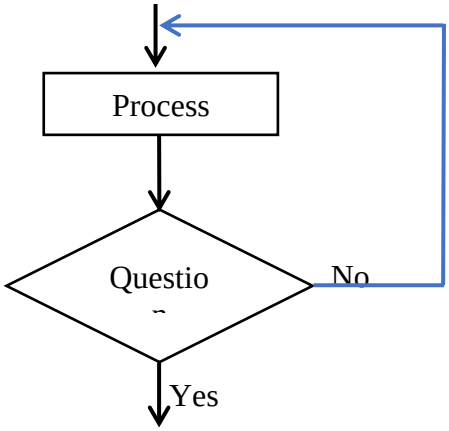
1. **Sequence** – the steps are positioned one after another and the demonstration of the program is from uppermost to lowermost.



2. **Branching (Selection or Decision)-** choosing between two or more alternative actions. It is usually represented by the "if-then" condition and answerable by true/false and yes/no. In addition, it is represented by the diamond-shaped decision box.



3. **Loop (Repetition) -** allows a statement to be repeatedly executed until a condition is met based on certain loop condition.



Below are the examples of Flowcharts with Algorithms that will help in understanding of flowcharting techniques.

1. Your favourite subject is Mathematics and Basic Programming. You want to challenge yourself on how you're going to combine the two subjects with one activity. Then you suddenly think about finding the Area and Perimeter of Square using flowchart.

Algorithm

Step 1: Start

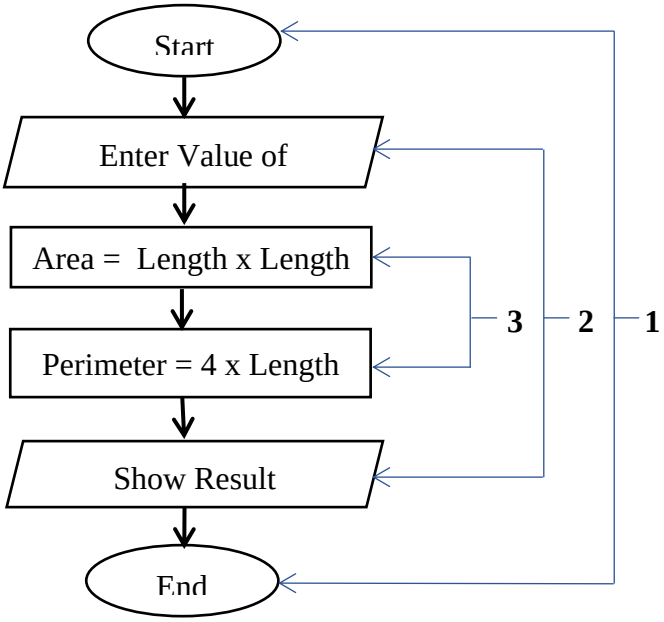
Step 2: Enter Value of Length

Step 3: Area = Length x Length

Step 4: Perimeter = 4 x Length

Step 5: Show result of Area and Perimeter

Step 6: End



1	2	3
Terminal	Parallelogram	Rectangle
Start and End of the program.	Input and Output of the program	Process of the program. Example: performs calculation.

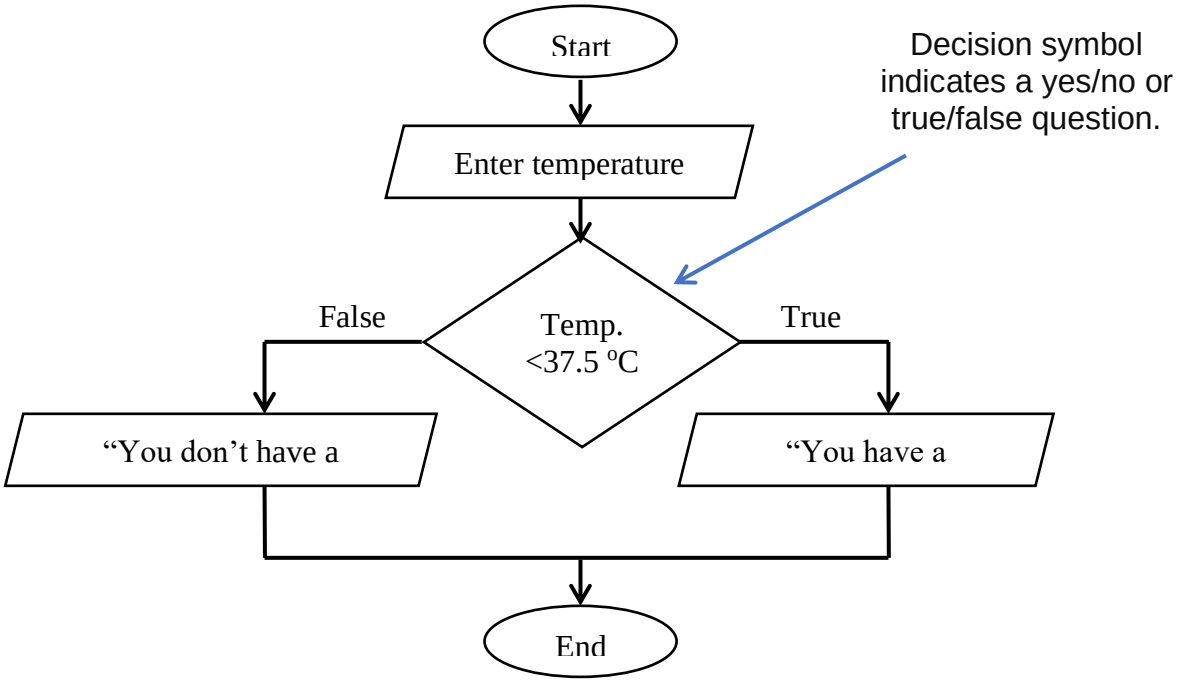
Notice there are three types of symbols used in this flowchart: Each symbol represents a different type of operation.

This is an example of Sequence Flowchart. Statements are placed one after another and the execution is from upper to lowest.

2. Because of the pandemic also known as Covid - 19 happening around the world, a lot of people are frightened with their health condition. As a programmer you are assigned to create a flowchart that determines if a person has a fever or in normal body temperature.

Algorithm

Step 1: Start
Step 2: Enter temperature
Step 3: Check: If temperature is
    Less than <37.5 ^{o}C then
    Print: "You have a fever!"
    Else
    Print: "You don't have a fever"
Step 4: End



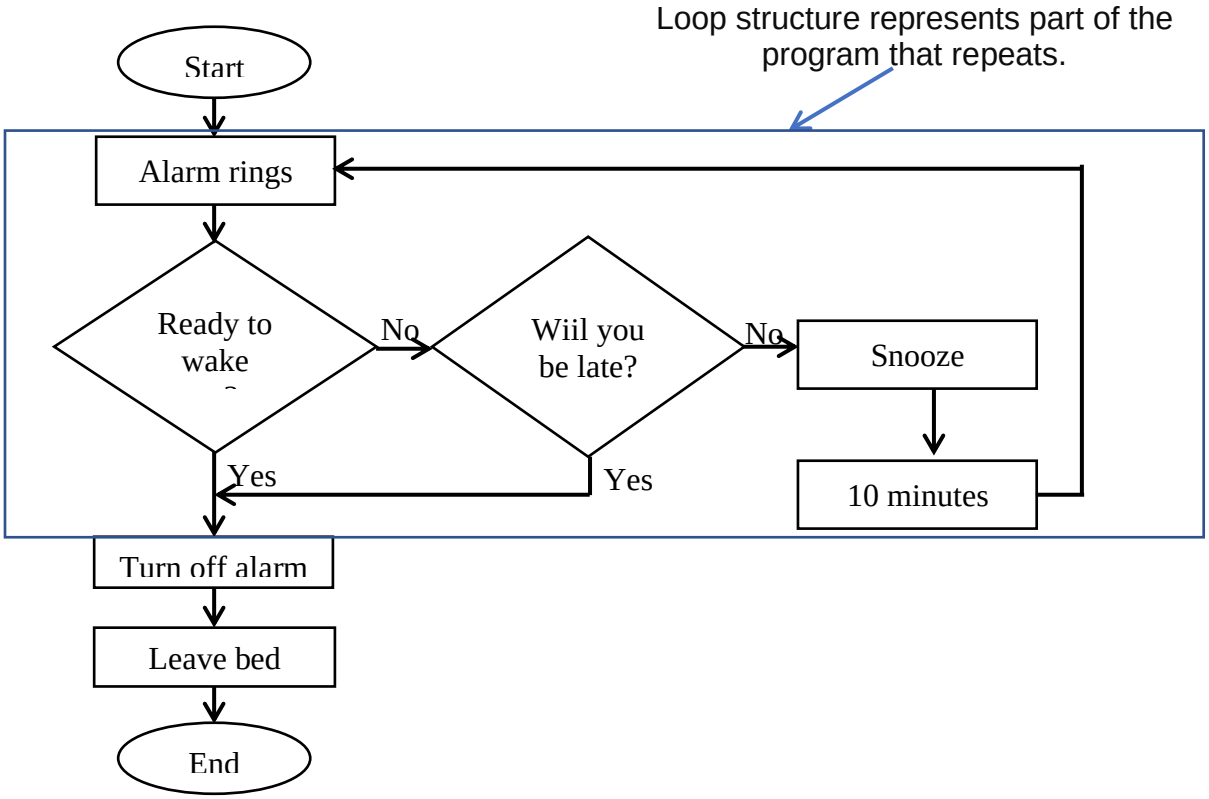
This is an example of Branching (Selection) Flowchart where according to a condition, if temperature is <37.5 ^{o}C *then TRUE otherwise FALSE.*

3. A simple decision making flowchart of waking up in the morning.

Algorithm

Step 1: Start
Step 2: Alarm rings
Step 3: Check: Ready to wake up?
    If No, Will you be late? If No, Snooze 10 minutes then back to Step 2.
    If No, Will you be late? If Yes, then continue to Step 4.
    If Yes, then continue to Step 4.

Step 4: Turn off alarm.
Step 5: Leave Bed.
Step 6: End



This is an example of Loop or Repetition Flowchart wherein the statements are being executed repeatedly until the decision is done.

LEARNING COMPETENCY

Create different types of flowchart.

ACTIVITIES

ACTIVITY 1

Directions: Answer the following questions. Write only the letter of the correct answer on the space provided.

_____1. Which of the following is used to display ”Hello World” repeatedly?

a. Sequence b. Decision c. Loop

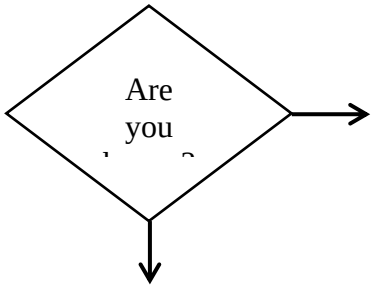
_____2. Which of the following flowchart control structure is applicable if wanted to display Passed or Failed Grades of students?

a. Sequence b. Decision c. Loop

_____3. Which of the following is used when the execution of flowchart if from top to bottom?

a. Sequence b. Decision c. Loop

_____4. Which of the following is missing in the illustration?



a. On/Off
b. Yes/No
c. In/Out

_____5.In flowchart, how are symbols connected?

a. With lines and an arrow to show the direction flow
b. With dashed lines and numbers
c. With solid lines to link the event

ACTIVITY 2

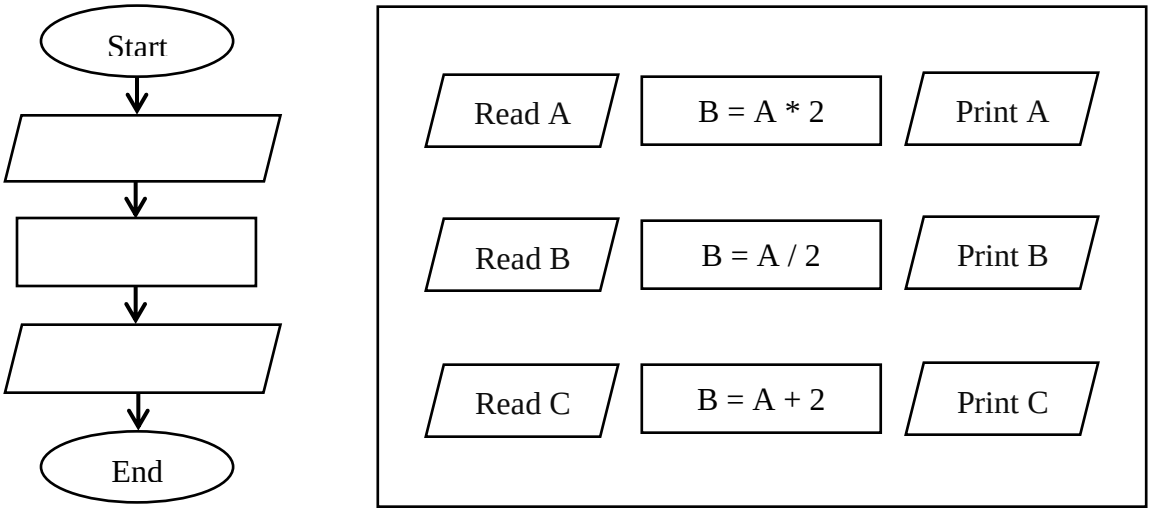
Directions: Match the Column A (Purpose) to Column B (Elements). Write the answer on the space provided.

Column A	Column B
1. Find if a number is greater than the other	a. Sequence
2. Read three numbers	b. Process
3. Print the total	c. Decision
4. Indicate beginning of a problem solving flow.	d. Output
5. Calculate total of A, B, C	e. Start
6. Indicate that the problem has been solved.	f. Loop
7. Read a number and calculate the factorial of the number.	g. Stop
	h. Input

ACTIVITY 3

Directions: Fill in the missing steps in the following flowchart. Choose the correct answer to complete the missing part of flowchart.

Create a flowchart that prints out and double the number of the inputted value. Choose the appropriate boxes that describe the algorithm as described below.



ACTIVITY 4

Directions: Answer the following problem. **Option A.** If you have a computer and printer at home, use Microsoft Word in creating a flowchart. Print your output and attached it on your Activity Sheet. **Option B.** If there is no available computer and printer at home, use a short bond paper instead and attached it to your Activity Sheet.

Rubric for Scoring

One (1) point each criterion:

1. The flowchart exhibits analysis of the problem.
2. The flowchart includes all the key elements to help visualize a final, generalized solution.
3. The flowchart shows proper uses of symbols, arrows, label, and its description are clear and concise.
4. The flowchart is neat, logically organized, and easily understood.
5. The flowchart has an attractive and usable layout.

1. Write a flowchart that will ask the user to input grades in Computer Subject from First Grading to Fourth Grading. Compute and display the sum and average of these grades.

2. Write a flowchart that allows the user to input number and determine whether it is POSITIVE or NEGATIVE.

REFLECTION

As SP-ICT students, how do flowcharting relates in your everyday living? Cite an example of your daily routine that is similar in creating flowchart.

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