

Activity 05-2: Flowcharting

Big Idea

A flowchart is a graphical representation of a process. It can be used to think through a process and test scenarios. Software engineers and programmers often use flowcharts to design new applications and products. The shapes in a flowchart have consistent meanings, and so other people can read your flowcharts and understand the process you have designed. The flowchart shapes can be found in many digital applications, such as word-processing tools, presentation software, drawing tools, and applications specifically designed for flowcharting.

Materials

There are many explanations of flowchart symbols online, such as this one from SmartDraw.com or this downloadable PDF from BreezeTree.com. There are many others.



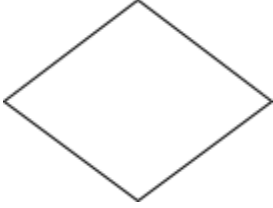
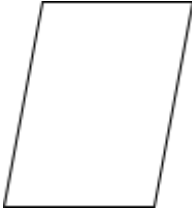
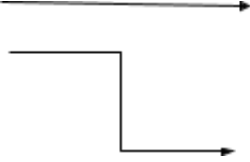


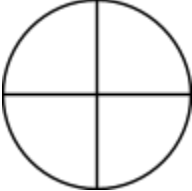


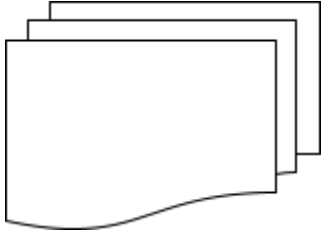

Vocabulary

Flowchart
Terminator
Process
Decision
Data (Input/Output)
Connectors
Predefined Process
Summing Junction
Boolean Operators (AND, OR)
Display
Database

Background

There are a lot of flowchart symbols, some of which represent outdated processes or technologies. You can create useful flowcharts using just a few key symbols. Some of these are listed below.



		
Terminator The starting and stopping point.	Process An action.	Decision Branching changes direction based on the decision (e.g., yes, no, or True, False)
		
Data (Input/Output) The program either inputs or outputs information.	Connectors Connect the steps and show the flow of the process.	Predefined Process A subroutine or subprocess within the larger process.
		
Summing Junction Represents the Boolean logic operator AND.	Or Represents the Boolean logic operator OR.	Display Information is displayed in some way.
		
Document The process uses or generates a document.	Multiple Documents	Database Information is accessed from or stored in a database.



There are more, but this will get you started creating some simple flowcharts. These were all created by inserting a pre-existing shape in a Google Drawing. This functionality exists in Microsoft Word, Google Slides, PowerPoint, and many other programs.

Activity Directions

1. Identify a process that you can represent by a flowchart. Consider a process related to managing the Help Desk. You can create a flowchart for a routine Help Ticket or a process for managing inventory. If you need ideas, ask your program coordinator or teacher for a process that would make managing the Help Desk easier for them.
2. Rough out the steps of the process in any way that is familiar and comfortable for you. You can create a bulleted list of the steps, draw them using paper and pencil or a dry-erase board, or use sticky notes. At this point, something you can edit and move around is helpful.
3. When you feel you have identified the steps, create a flowchart of your process using the common symbols listed above or one of the linked resources. You can create an analog flowchart using paper and pencil or go digital, using word-processing or presentation software or exploring one of the many digital flowcharting tools.
4. Have at least one other teammate review your flowchart and make suggestions. You could also work in pairs or as a small group and share it with other pairs or small groups.

Example

Here's a very simple flowchart for what to do when a ticket for a cracked screen comes into the Help Desk, first as a bulleted list of steps and then converted into a flowchart. Note that some of the processes are predefined subprocesses, so the steps for processes like replacing the screen are not included in this example.

1. Help Ticket for Cracked Screen is Submitted
2. Help Ticket is Assigned to Help Desk Team
3. Check Inventory: Is inventory less than 5?
 - a. Yes: order more screens
 - b. No: take screen and update inventory
4. Replace Screen
5. Return repaired device



