Lesson 8: Analyze an Algorithm

In this lesson, learners will have time to practice and cement their knowledge on some of the things they have learnt throughout the algorithms unit. The worksheets contain a range of questions on flowcharts, searching algorithms, and sorting algorithms which will help prepare them for the summative assessment for this unit.

The slides contain solutions to a select few tasks from the worksheets that will provide you with an opportunity to check learners’ understanding and discuss these questions. It will also be useful to get learners to peer-assess the worksheets as much as possible so that they can gain an insight into how other learners have answered the questions, especially the “describe” and “explain” questions.

## **Objectives:**

- Interpret algorithms and suggest improvements.

- Analyze and fix errors in a flowchart.

- Perform searching and sorting algorithms on samples of data.

## **Materials:**

- Worksheets on flowcharts, searching algorithms, and sorting algorithms.

- Slides with solutions to selected tasks from the worksheets.

- Peer-assessment sheets for students to assess each other's worksheets.

## **Bell-Ringer Activity:**

- Display a flowchart on the board and ask students to identify any errors or improvements they would make.

## **Introduction:**

- Review the concepts of algorithms, flowcharts, searching algorithms, and sorting algorithms.

- Explain the importance of understanding and being able to analyze and improve algorithms.

- Discuss the relevance of algorithms in everyday life and various industries.

## **Direct Instruction:**

- Present slides with solutions to selected tasks from the worksheets.

- Discuss the solutions and encourage students to ask questions and provide their own insights.

- Emphasize the importance of understanding the logic behind each algorithm.

## **Guided Practice:**

- Divide students into pairs or small groups.

- Distribute the worksheets on flowcharts, searching algorithms, and sorting algorithms.

- Instruct students to work together to complete the worksheets.

- Encourage students to discuss their answers and reasoning with their peers.

## **Independent Practice:**

- After completing the worksheets, instruct students to peer-assess each other's worksheets using the provided peer-assessment sheets.

- Encourage students to provide constructive feedback and discuss any differences in their approaches to the questions.

- Allow students to revise their answers based on the feedback received.

## **Exit Ticket:**

- Distribute an exit ticket with a few short questions related to the lesson objectives.

- Instruct students to answer the questions individually and submit their responses before leaving the class.

## **Closure:**

- Review the key concepts covered in the lesson.

- Summarize the importance of interpreting algorithms, analyzing flowcharts, and performing searching and sorting algorithms.

- Encourage students to continue practicing and exploring algorithms in their daily lives.

## **Common Core Standards:**

- CCSS.ELA-LITERACY.RST.9-10.3: Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.

- CCSS.ELA-LITERACY.RST.9-10.4: Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9-10 texts and topics.