

Questions to Assess For learning As learning Of learning Factors Lesson

For Learning

Have students experienced working together to create a pseudocode or flowchart to decompose a mathematical algorithm or as part of learning to code?

Have the students coded in Scratch before this activity?

Are the students familiar with terms such as: Prime, Composite, factors; algorithm; procedure; decomposition; pseudocode & flow chart.

Are there routines established *“to support your students’ learning of math concepts and skills and to foster your students’ overall well-being and their ability to learn”* (part of the description of Strand A) such as paired programming and a class Advice Space?

As Learning

As the class participates in the creation of coding blocks for pseudocodes chart (see example of this chart in Factors Lesson Plan:

Are there more and more actions suggested by students?

Are these actions increasingly refined?

Are these actions given in more and more appropriate order?

Are these actions given using appropriate vocabulary reflecting the mathematical algorithm &/or coding blocks procedures?

Is there less & less need to debug the pseudocode?

Is there evidence to demonstrate students’ understanding of decomposition and the development of an algorithm?

As the class participates in building a coding program:

Do the students refer to the pseudocode/flowchart to select and order the coding blocks?

Does the block stack(s) require less and less debugging to run as planned?

Is there evidence of students’ ability to:

- identify and manage their emotions by expressing and managing their feelings, and show understanding of the feelings of others, as they engage positively in

mathematics activities such as creating pseudocode & flow charts? (Social Emotional Learning Expectation)

- develop and apply their reasoning skills (e.g., classification, recognition of relationships, use of counter-examples) to justify their thinking, make and investigate conjectures, and construct and defend arguments with whole class, small group, or in pairs when creating pseudocode and in so doing apply the mathematical processes of reasoning and proving? (Social Emotional Learning Expectation)

Do the students work in Pair Programming successfully?

Of Learning

Do the students make variations within the block stack to reflect efficiency? (for example, use Control Blocks such as Repeat, IF/Then, IF/Then/Else to loop block patterns rather than repeat sections of blocks; nest Operator blocks for mathematical operators?)

Are these adjustments made after completion of the project? after peer &/or teacher advice? As the coding stack is made? As the pseudocode is written?

Do the students add &/or alter blocks to the prescribed project to augment the program's capabilities creatively and mathematically?

Is there evidence the students selected from and successfully created a variety of representations, ideas and algorithms (such as pseudocode for a remix of an existing Scratch project or their own Scratch project), and apply them to solve problems when coding and in so doing apply the mathematical process of representing to their work? To what degree is this happening? (Social Emotional Learning Expectation #6) [Curriculum Expectations Social-Emotional Learning](#)

Is there evidence of the students demonstrating their ability to think critically and creatively by selecting tools and strategies such as pseudocode or flow charts to investigate mathematical ideas and to solve problems &/or debug coding projects? To what degree is this happening? (Social Emotional Learning Expectation #6) [Curriculum Expectations Social-Emotional Learning](#)

Are students providing coding advice to others and tackling coding projects positively and in doing so, demonstrating themselves as capable math learners? To what degree is this happening? (Social Emotional Learning Expectation #5) [Curriculum Expectations Social-Emotional Learning](#)