

Standard: K.AP.A.01

Model daily processes and follow basic **algorithms** (step-by-step lists of instructions) to complete tasks.

Essential Skills

Follow a sequence of instructions to complete a familiar task

Essential Questions

How can you create an **algorithm** for a common task?

Why is the order of the steps important in an algorithm?

Why is it important to be precise and accurate when creating an algorithm?

Explanation

Students should be able to follow **algorithms** for familiar tasks such as preparing simple foods and brushing their teeth and progress to following algorithms for tasks or outcomes with which they are unfamiliar. By grade 2, students should be able to compose algorithms independently. Initially, algorithms can be in the form of simple lists and flow charts. As students gain comfort with the concept they should create algorithms using pseudocode and **computer programs**.

Think of this as similar to...

When you get dressed for school you probably put your clothes on in a specific order--for example you put your shirt on, then your pants, then your socks and finally your shoes.

Implementation Examples—What would this look like in the classroom?

Title	Description	Link	Content Connection & Notes
Fitness Unplugged	Grade K- Students are given or create 4 cards with different fitness exercises on them, along with a Go card and a card that tells them how to finish. They arrange the cards with the Go card first, the Finish card last and the exercises in any order. They then follow the sequence. They move over to the cards set out by a different group and follow those cards in sequence.	Fitness Unplugged	This lesson also aligns with Physical Education S1.G1.1
Little Red Hen	Grade K- Students listen to and/or watch a video of The Little Red Hen. Students then put the sequencing picture cards in the correct order to retell the story. (This can be adapted to a story of your choice)	Little Red Hen	
The Very Hungry Bee-Bot	Grade K-- Students as a class or group use a paper version of the robot to find a path from a starting point to a target they have chosen on a shape mat. Following the algorithm the group created, they program a robot to reach the target. Once they find one successful path, students can find other paths between the starting point and target. Grade 1-- Students program their robot and report where the robot ends up when given different algorithms to follow. They can also give details about the path (such as the robot traveled on the orange circle to arrive at the red triangle). Students should note that different paths can take the robot to the same target.	The Very Hungry Bee-Bot	This lesson also aligns to CS K.AP.V.01 and can be used with any robot, despite the title.

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These annotations are a collaboration between [Maryland Center for Computing Education](#) and the [Maryland State Department of Education](#).