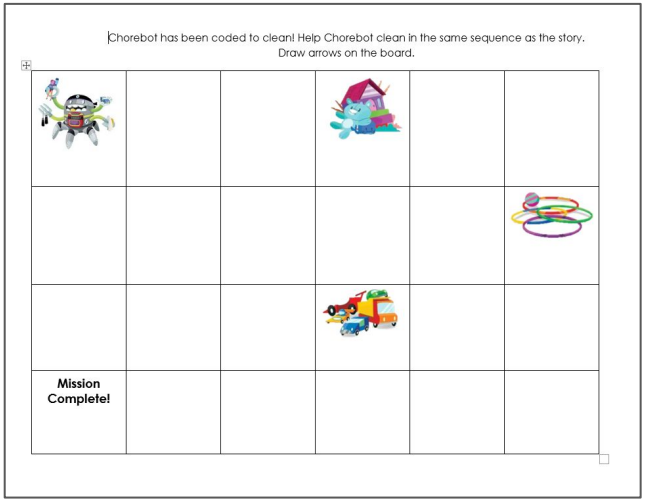
Supporting Students with Special Needs in the CS Classroom

Jennifer Weaver
Baltimore County Public Schools
jweaver@bcps.org

Meeting the Needs of Students Receiving Special Education Services

The Scene (based on a true experience):



You are on lesson 1.08 and students will be doing some unplugged coding based on a book you read to them. One student has an adult assistant with them. They play with a fidget toy at their desk while you read the book to students on the carpet. They occasionally look up at the book you are reading and seem interested in parts.

When the class starts working on the paper activity, the adult assistant directs the student to “look at the paper and draw some arrows,” but the student is ignoring them. They keep repeating the direction and saying “it’s time to stop playing with the fidget.” As you circulate around the room, the student starts loudly saying “no” and pulling away from the table as the adult attempts to pull them back. You approach the situation… **what do you do?**

Some support resources:

The Prompting Ladder
(we're going to look at this one more closely next)

Top 10 Ways To Reduce Stressors

Lifelines to Have at the Ready

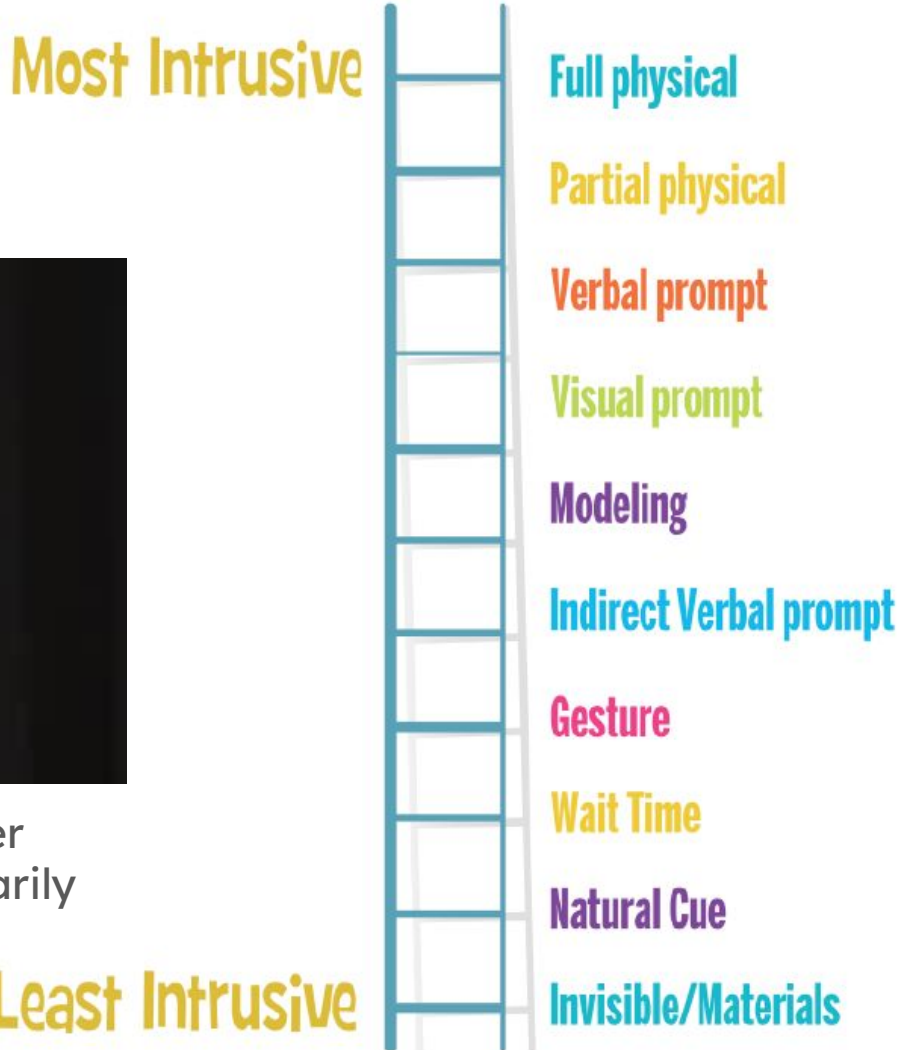
Steps For Responding To A Big Emotion

Scaffolding your Approach

INCLUSIVE schooling

THE PROMPTING LADDER

Repeating the same direction over and over can make anyone irritated and not necessarily lead to success. **Verbal prompting** is more intrusive than other methods.

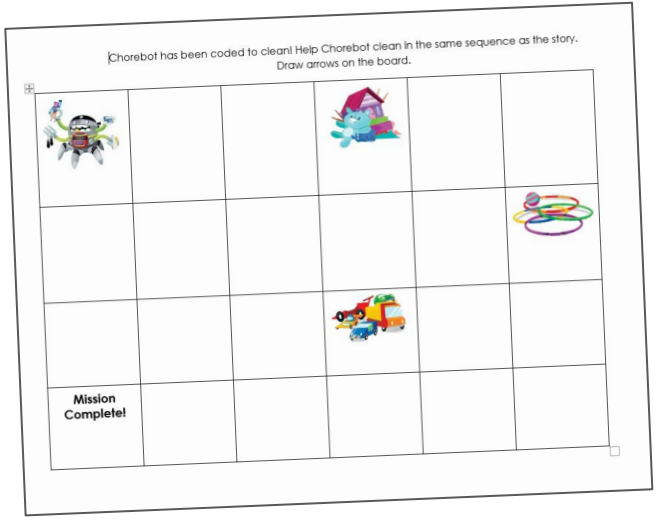


Scaffolding your Approach

INCLUSIVE schooling

THE PROMPTING LADDER

Let's apply this approach to the previous scenario.



An adult guides the student through the activity with hand over hand support.

An adult places an arrow piece into their hand and points to the spot to place it.

"Put the blue arrow in the spot next to the robot."

An adult shows the student a finished worksheet.

An adult shows the student how to put the first arrows in place.

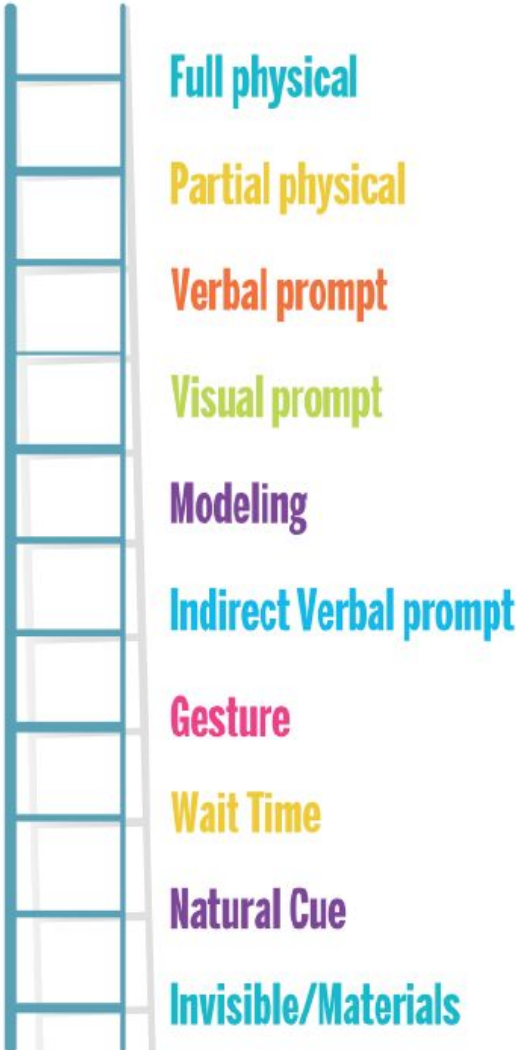
"Which direction does it move? I can't remember what the Chorebot cleaned up first, do you?"

An adult makes eye contact and points to the work at the table.

The student is given a few minutes to begin their work.

Other students begin working.

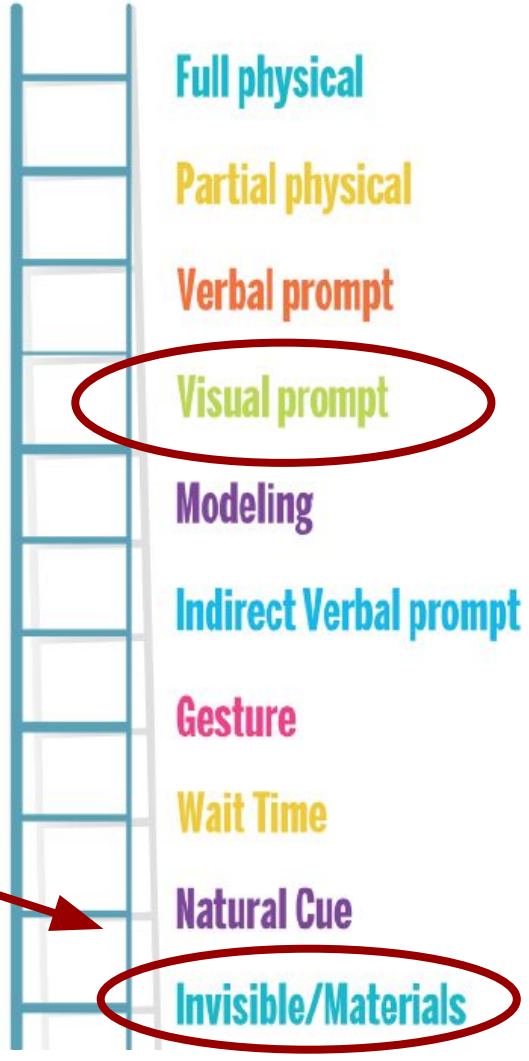
You give the student a version of the worksheet with manipulative arrows and a picture sequence of the chores.



Scaffolding your Approach

INCLUSIVE schooling

THE PROMPTING LADDER



An adult shows the student a finished worksheet.

Two of these might require some advanced preparation and a little extra work on your part. Today we're going to focus on this one.

You give the student a version of the worksheet with manipulative arrows and a picture sequence of the chores.

“Invisible” Supports

Invisible means that these supports originate without being obvious to the student or others.

One least intrusive way to prompt students to engage in the work is to provide “Self-correcting materials.” These are activities and tools that the students can use with minimal adult support, promote independence, and sometimes provide immediate feedback.

Adaptations with Self Correcting Materials

Two categories of adaptations:

Accommodations

Changes in how a student accesses information and demonstrates learning. Accommodations do not substantially change the instructional level, content, or performance criteria.

vs

Modifications

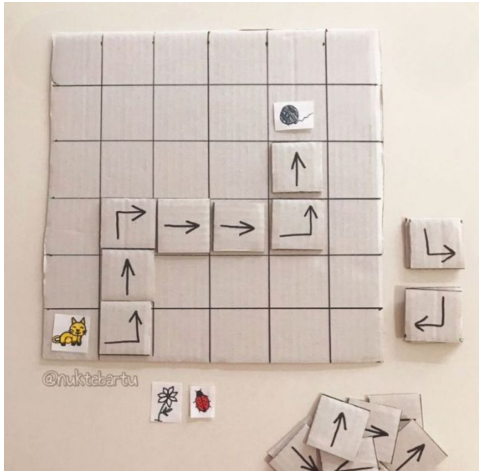
Changes in what a student is expected to learn. Modifications include changes in level, content, and performance criteria.

Accommodations

Changes in how a student accesses information and demonstrates learning.

Give students the algorithm and ask them to identify what's at the end of the path.

Source

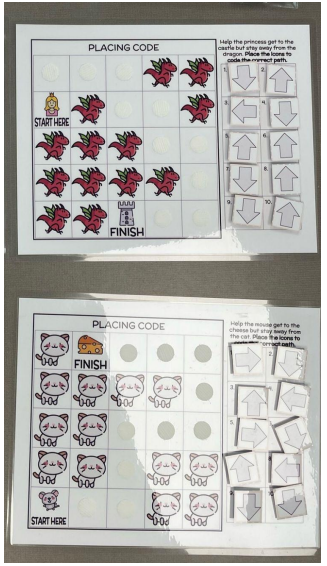


Use cardboard instead of paper when doing unplugged coding to help students who struggle with fine motor skills.

Source

Use page protectors and velcro dots to make reusable unplugged activity boards that can be swapped out for different themes and challenges.

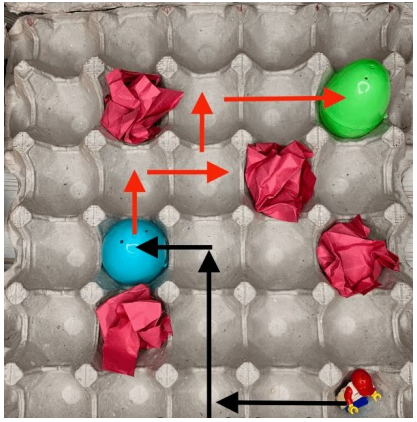
Source: Rae Lautar



Cardboard egg trays, with paper or plastic obstacles and toy figures can help students form algorithms through physical motion*.

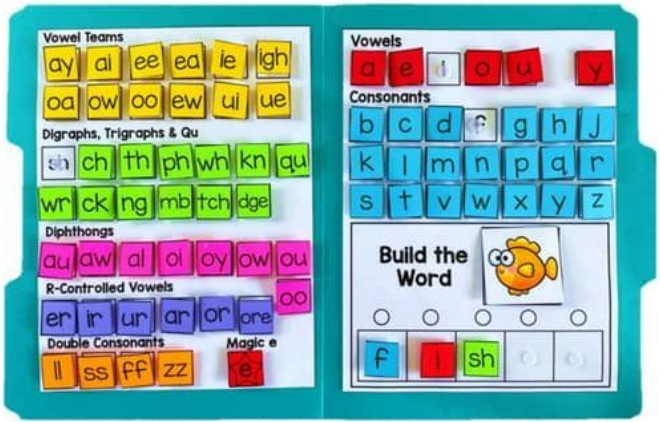
*The student can move and count and an adult or peer can record.

Source



Accommodations cont…

Changes in how a student accesses information and demonstrates learning.



Imagine this word-builder folder with ScratchJr blocks instead of letters, and ScratchJr sprites instead of a fish. Students can physically build their code for each sprite and then either they, a peer, or an adult can transfer it to the computer.

[Source]

A file folder, some adhesive magnet strips, and a little creativity can be used to create a task board for common eCSI activities like completing an ozobot activity or programming a story in Scratch.

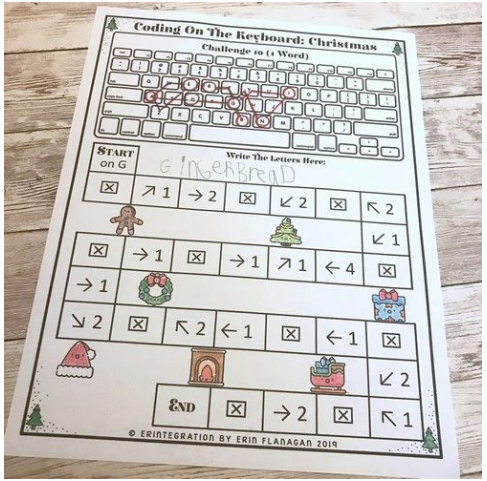
Source: Jen Weaver

Use a sentence strip chart and large cut-out blocks to provide a bank of blocks students can use in their programs OR to allow students to visually build multiple scripts for their sprites.

[Source]

Modifications

Changes in what a student is expected to learn.



Students can practice finding letters on the keyboard AND following a sequence of directions in order to discover the secret message.

Source

Give students materials and an algorithm to follow and make something.

Source

Students can practice forming patterns with blocks.

Source

Printable magnetic sheets and a dollar store cookie sheet can become an activity where students have to assemble something according to a “recipe.”

Source

Source

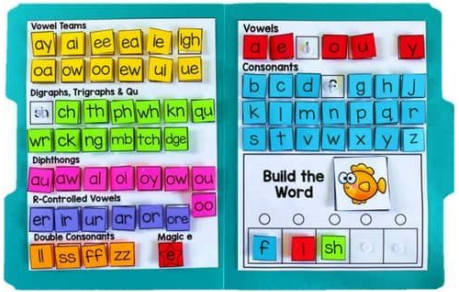
Students can look for patterns of similarities and sort items into groups that they define or are defined for them. You can use small cups or egg cartons!

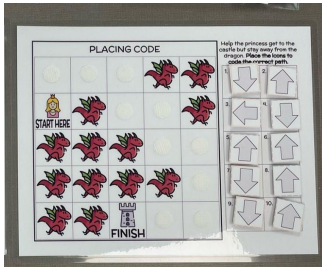
Source

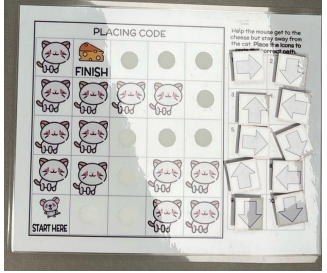
Shopping List:

- Printed arrows code Blocks on cardstock (cut after laminating!)
- Self-adhesive laminating sheets (laminate only the front!)
- Adhesive Velcro strips
- Adhesive magnet
- Clear page protectors
- File folders
- Corrugated cardboard
- Magnetic surface (like a cookie sheet or tray)

What did you see that peaked your interest?

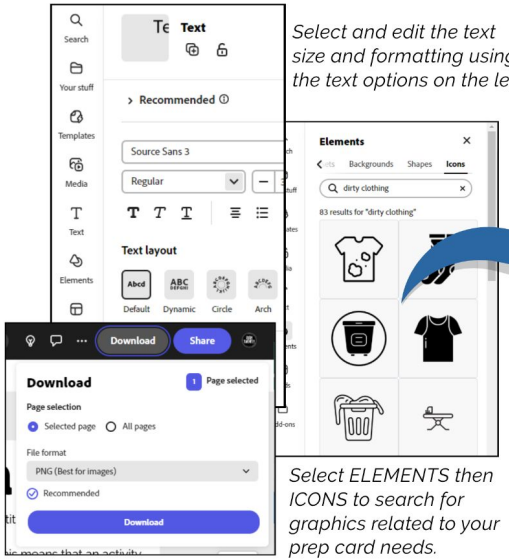






Activity Prep Cards

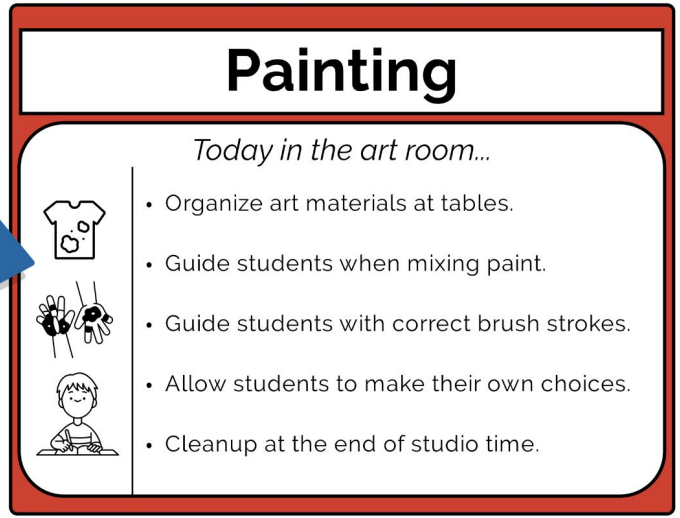
Activity card templates can be helpful communication tools for student aides, substitutes, parent helpers, and students. These are reusable and should be created for the activity instead of the project. This means that an activity like "painting" can be used in any project that includes painting techniques. This document is editable. On the next page, there are 4 activity card templates with editable text fields and space to add icons. Using Adobe Express, you may add icons from their system just by searching for related graphics. Reusing the same icons is a great way to maintain consistency from day to day.



Select and edit the text size and formatting using the text options on the left.

Select ELEMENTS then ICONS to search for graphics related to your prep card needs.

Download to print!



Example Prep Card

Templates are available on the next page -->

Painting

Today in the art room...

- Organize art materials at tables.
- Guide students when mixing paint.
- Guide students with correct brush strokes.
- Allow students to make their own choices.
- Cleanup at the end of studio time.

Clay

Today in the art room...

- Model clay building techniques for student.
- Organize art materials at tables.
- Use proper tool and material functions.
- Check in with student during studio time.
- Cleanup at the end of studio time.

Darkroom

Today in the art room...

- Model correct chemical usage.
- Model proper darkroom procedures.
- Assist student in enlarger setup and organization of space.
- Assist student in test strip organization.
- Model proper cleanup procedures.

Collage

Today in the art room...

- Organize art materials at tables.
- Model proper cutting and gluing techniques.
- Model sharing strategies with students.
- Model composition layout but allow students to place materials to create personal artistic responses in their artwork.

Lesson/Activity

Today in the art room...

- Lesson Goal
- Reminder 1
- Reminder 2
- Reminder 3
- Reminder 4

Lesson/Activity

Today in the art room...

- Lesson Goal
- Reminder 1
- Reminder 2
- Reminder 3
- Reminder 4

Lesson/Activity

Today in the art room...

- Lesson Goal
- Reminder 1
- Reminder 2
- Reminder 3
- Reminder 4

Lesson/Activity

Today in the art room...

- Lesson Goal
- Reminder 1
- Reminder 2
- Reminder 3
- Reminder 4