**Think-Pair-Share**

**Big Picture:** Develop a process that works for your situation, and stick with it so students develop positive patterns for discussion.

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|  | **Virtual Asynchronous** | Assign small groups for students to check in with one another while completing lesson activities. Students can use a shared document to communicate. A [single document](https://docs.google.com/document/d/1R5c6gXxiffmv_q2D0B3-K3e2aG4Uggw8lZdJmnUlnZA/edit) or [slide deck](https://docs.google.com/presentation/d/1pGcC3Nn_qCvXIChdatuVWqVwnGi6HOt8qJqSwB5YU6w/edit?usp=sharing) may be easier for you to monitor. We suggest designating sections of the document or a single slide for each group of students.  |
|  | **Virtual** **Synchronous** | If breakout rooms are available, pair students up to discuss prompts. If you don’t have access to breakout rooms, you may want to consider using the virtual asynchronous advice. |
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|  | **Socially-Distanced Classroom** | Pairs of students can communicate together using a shared document. Alternate this modality with calling on students to share out loud.  |

**Peer Feedback**

**Big Picture:** Develop a process that works for your situation, and stick with it so students develop positive patterns in sharing feedback.

Help students develop good feedback practices by providing sentence starters:

* One thing I liked was...
* One thing I would change was…
* I'd like to know more about...

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|  | **Virtual Asynchronous** | Use a shared document with a [template](https://docs.google.com/presentation/d/1eH4B4J-wmudqSTKbpJdvmStti7T9cTabs5_EUNB8XJM/edit#slide=id.p) for feedback with the sentence starters posted above.  |
|  | **Virtual** **Synchronous** | If you have the ability to do breakout rooms, pair students so that they can share feedback. Give students specific questions to help focus their feedback. If you don’t have access to breakout rooms, you may want to consider using the virtual asynchronous advice. |
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|  | **Socially-Distanced Classroom** | To avoid students sharing devices, consider using the virtual asynchronous feedback strategy in class. During the time designated for feedback, all students can remain on their computers while they access the shared document.  |

**Group Projects**

**Big Picture:** While we believe in the importance of collaboration, to address equity and ease of access concerns, you may need to modify group projects to be completed individually. You may need to come up with a system so students can alert you if they need help during the project.

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|  | **Virtual Asynchronous** | To address equity and ease of access concerns, we suggest modifying group projects to be completed individually. |
|  | **Virtual** **Synchronous** | If breakout rooms are available, have students work in breakout rooms as they would in the classroom. Make sure they know how to screen share. If you don’t have access to breakout rooms, you may want to consider using the virtual asynchronous advice. |
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|  | **Socially-Distanced Classroom** | Have students bring headphones and join a virtual call with their group. They can then work as they normally would.  |

**Multiple-Choice Assessments**

**Big Picture:** For virtual environments, we suggest using unit projects for summative assessments and multiple-choice assessments for formative assessment. To ensure the integrity of assessments, please don't post or share keys with your students or other teachers.

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|  | **Virtual Asynchronous** | Encourage students to complete the assessment on their own. Treat this as a formative assessment, allowing students to look up answers and test themselves. After all students are finished, share out a document with common mistakes and explanations. Please do not share the answer key. Optionally schedule open office hours for students to meet with you to discuss questions.  |
|  | **Virtual** **Synchronous** | Encourage students to complete the assessment on their own before joining the virtual call. Treat this as a formative assessment, allowing students to look up answers and test themselves. During the class, lead a student discussion on challenging questions.  |
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|  | **Socially-Distanced Classroom** | Complete the assessment and review as written in the lesson plan.  |

**Pair Programming**

**Big Picture:** Pair programming is a technique in which two programmers work together on the same computer. Students take on the role of driver and navigator and switch frequently. This practice provides many benefits around communication, collaboration, and equity. However, it may not be possible in current school environments.

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|  | **Virtual Asynchronous** | To address equity and ease of access concerns, we suggest not using pair programming in an asynchronous environment and having students work independently during those lessons. See the “Debugging” section below as you consider how to support students working independently during this time.  |
|  | **Virtual** **Synchronous** | If breakout rooms are available, pair students up. Instruct one student to share their screen and have students alternate describing the code out loud. The student who has shared the screen then types in the code. This is not true pair programming, as students are not fully trading off on the roles of driver and navigator, but will allow for some collaborative coding. If you don’t have access to breakout rooms, you may want to consider using the virtual asynchronous advice. |
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|  | **Socially-Distanced Classroom** | Have students bring headphones and join a virtual call with their partner. Instruct one student to share their screen and have students alternate describing the code out loud. The student who has shared the screen then types in the code. This is not true pair programming, as students are not fully trading off on the roles of driver and navigator, but will allow for some collaborative coding.  |

**Debugging**

**Big Picture:** Develop a process that works for your situation, and stick with it so students develop positive patterns for debugging.

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|  | **Virtual Asynchronous** | Have a clear protocol for students to use when they run into a bug they cannot solve themselves. Questions to consider are: * Who do students contact when they run into a bug?
* How do they describe the bug to another person?
* How will they share their project with another person?

There are pros and cons to each strategy you use. One solution is to create a community-sourced place for participants to share and fix one another’s bugs. Alternatively, you might want to create a calendar where students can make appointments with you to talk through their bugs one-on-one via a video conference and screen share.  |
|  | **Virtual** **Synchronous** | Create a shared space such as a google doc or [slide](https://docs.google.com/presentation/d/1rCh1tTTkPJJ_6yCDvGTDIjICMcoWSahIo-G2hmQ9RQo/edit?usp=sharing) where students can add bugs as they encounter them. The teacher or other students can provide feedback. The teacher can periodically select bugs for the group to discuss together. |
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|  | **Socially-Distanced Classroom** | Students can share a buggy project with you and as a class you can discuss and debug it together. Students can also share projects with each other, and use a shared document to detail the debugging process.  |

**Your Turn!**

Do you have ideas for lesson modifications or resources to share? Maybe you've used a 3rd party tool to create discussion posts, or developed viewing guides for Code.org videos. Please share your ideas in the [CS Discoveries Virtual and Distance Learning](https://forum.code.org/c/csd/virtual/412) or [CS Principles Virtual and Distance Learning](https://forum.code.org/c/csp/Virtual/411) sections of the forum.

Be sure to use the links for more information, check back frequently, the responses and ideas can change daily.