

Title: Grappling

Grappling is working through a problem that has no obvious answer, while using perseverance and a growth mindset.

What does grappling look like in the classroom? Grappling might look like students are trying things out for themselves, problem-solving and challenging themselves to come up with ideas. Grappling does not look like students are fending for themselves or making little progress with new concepts for long periods of time.

When students are grappling, they should receive timely support and feedback. Without support or feedback, your students are just struggling.

How do I facilitate grappling?

- Start by cultivating a 'brave space' environment in which students can try and fail without distress, as with a growth mindset.
- Provide students with the information and background they need to solve a problem without giving them a clear way to solve the problem.
- Demonstrate your own curiosity and encourage investigation by students
 - If a student asks if their answer is right, you might ask them why they think it is correct.
 - Before you provide feedback, you might ask students to explain their hypothesis or reasoning.
 - You might walk students through your own incorrect hypothesis in real time, having the "aha" moment that you are incorrect with them.
- Provide individualized scaffolded support and praise for students' hard work, reasoning, and process, not the right answer.

Practicing grappling with adequate support can help students develop the skills they need to pursue research projects on their own.