Classroom Techniques to Motivate Students
Workshop by Sarah Bean Sherman (bean@eoas.ubc.ca) and Emily Scribner (escibne@eoas.ubc.ca), University of British Columbia, Vancouver, Canada

An alternative framework for motivation

<table>
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<th>Motivational Factor</th>
<th>Related Equity &amp; Inclusion factors</th>
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| Personal relevance and interest | Learners’ goals, interests, and values | • Use real-world contexts and problems as much as possible  
• Remember that different students find different things to be interesting, and different goals  
• Find out what students’ goals are; let them express those goals and why they are important to them.  
• Connect course material explicitly to future courses or career directions  
• Highlight explicitly how students are developing as scientists  
• Have students reflect on connections between what they are learning and their own goals and development as a scientist  
• Share your own enthusiasm for the subject (but remember there can be other reasons to find the subject interesting too) |
| Development as a person in STEM | | |
| Choice and control | Multiple ways to productively participate | With guidelines to keep within learning goals of the course:  
• Have students vote on optional topics to include in curriculum  
• Have students choose their own topic for a project or assignment  
• Have students design their own problem to solve / research  
• Give students a say in how to manage assignments and grading policies |
| Learners’ goals, interests, and values | | |
| Belief that one can achieve one’s goals: master the course material / develop as a scientist | Beliefs about learning, achievement and teaching | • Project high expectations  
• Acknowledge existence of, and reduce conditions for, stereotype threat / identity threat  
• Choose appropriate level of challenge  
• Give opportunities for early successes  
• Encourage students to view intelligence as a malleable rather than fixed trait  
• Emphasize importance of practice, and provide opportunities to reflect on how their practice leads to improvement  
• Highlight explicitly how students are developing as scientists  
• Provide opportunities where students act authentically as scientists (e.g., take, analyze, and present own data)  
• Make norms of scientific discourse explicit  
• Give students pre-class assignments to help prepare |
| Development as a person in STEM | | |
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From: Motivating Learning (by Carl Wieman Science Education Initiative) and Framework for Equity and Inclusion (by Institute for Scientist & Engineer Educators)

- [http://isee.ucsc.edu/programs/pdp/equity-inclusion.html](http://isee.ucsc.edu/programs/pdp/equity-inclusion.html)

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Environment is NOT SUPPORTIVE           Environment is SUPPORTIVE

DON'T see value     SEE value     DON'T see value     SEE value

Rejecting          Hopeless      Rejecting          Fragile

Evading            Defiant       Evading            Motivated

*Self-efficacy: one’s belief in one’s ability to succeed
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Ambrose et al., 2010