

TEACHING INNOVATION

Unofficial “Practices” are inspired by the practices from the national standards. They are designed to help educators focus on critical skills students need to master to become future innovators.



Innovators...

<i>...use mathematics</i>	<i>...use science and engineering</i>	<i>...use reading and writing</i>
(1) ASK QUESTIONS		
Innovators ask questions to better understand human needs.		
Find the patterns and structure in problems.	Ask questions that can be investigated.	Ask questions that can be researched in the literature.
(2) EXCHANGE IDEAS		
Innovators collaborate with other creative thinkers.		
Use tools and technology to exchange ideas.	Propose and evaluate multiple explanations.	Research widely and share knowledge extensively.
(3) THINK ACROSS DISCIPLINES		
Innovators apply know-how from all fields of study to solve problems.		
Use logic and creative reasoning.	Explore and develop multiple explanations and solutions.	Examine subjects and issues from many points of view.
(4) USE PICTURES AND MODELS		
Innovators use models as another way to express and explore ideas.		
Use symbols and models to explore new concepts.	Make 3D models to explain a process or test a design.	Use diagrams and drawings to present central ideas.
(5) LEARN FROM FAILURE		
Innovators think critically and are persistent problem-solvers.		
Revise conclusions based on data.	Use data to see if a design works and how it can be improved.	Modify ideas based on evidence.
(6) DELIVER CONVINCING PRESENTATIONS		
Innovators use evidence to show the value of their solutions.		
Validate the accuracy of their results.	Support/refute scientific claims, show how design meets specs.	Present clear conclusions based on research.
(7) APPLY THEIR IDEAS TO THE REAL WORLD		
Innovators find ways to connect new information to existing knowledge.		
Use math to describe a real situation or problem.	Connect their discoveries or designs to the real world.	Extract key concepts and make connections.
(8) COMMUNICATE		
Innovators tell others what they have learned.		
Use clear definitions when communicating with others.	Document and share the steps used to arrive at their results.	Produce coherent and concise documents.