

Intel Education® Thinking Tools

Intel Education® thinking tools are based on research that demonstrates the value of visual representation in constructing and retaining new information. Teachers create online workspaces for students to engage in robust discussions, analyze complex information, pursue investigations, and solve problems.

Each online tool provides the free resources necessary to obtain project ideas, learn classroom strategies, and build a project for your own classroom, including:

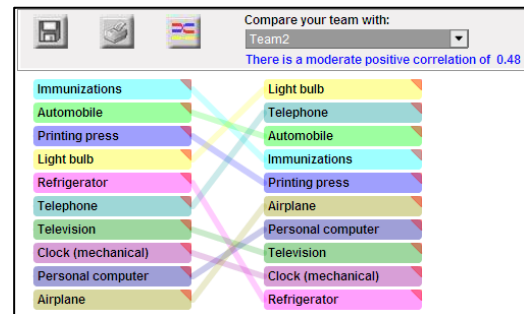
- Overview and Benefits—Description of the tool's features
- Try the Tool—A practice project you can manipulate and a full tutorial
- Project Examples—Project ideas and unit plans
- Instructional Strategies—Best practices for using the tool with students
- Workspace—Password-protected space to set up projects for students

Visual Ranking Tool

<http://educate.intel.com/en/thinkingtools/Visualranking>

The *Visual Ranking Tool* is an online tool designed for prioritizing and ordering list items. Using *Visual Ranking*, students identify and refine criteria as they assign order or ranking to a list. They can explain their reasoning and compare their work with others in a visual diagram.

This tool supports activities requiring students to debate differences, reach consensus, and organize ideas. By pointing to red triangles, a team's comments appear. By using the compare feature, teams can see how other teams ranked the same items.



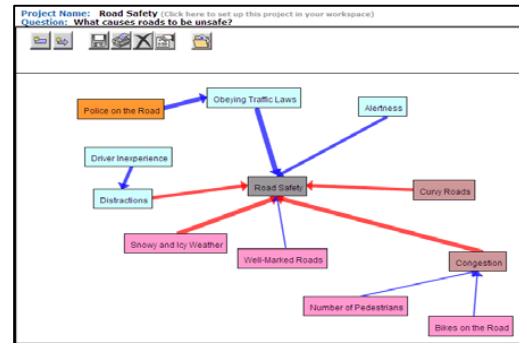
Seeing Reason Tool

<http://educate.intel.com/en/thinkingtools/seeingreason>

Seeing Reason is an online tool for mapping cause-and-effect relationships. These maps make thinking visible and promote collaboration as students refine their understanding. Practice reading any maps on the site (in *Try the Tool* or any of the sample projects) by pointing to and reading the descriptions of the red and blue relationship lines. Double-click factor boxes to view explanations of the factors.

The *Seeing Reason Tool* helps students create causal maps that have one specific purpose: to visually represent specific, measurable, or verifiable factors that influence or impact a problem or system.

Through causal mapping, students describe how, and to what degree, factors affect one another. Mapping helps students represent their understanding as they investigate the nature of a problem that requires thinking about cause and effect.



Factors involved in cause-and-effect relationships are represented by a square box.

The relationships between the factors are represented by arrows of a specific thickness and color:

- Thicker arrows show a stronger relationship.
- Thinner arrows show a weaker relationship.
- Blue arrows indicate positive relationships (as X increases, Y increases).
- Red arrows indicate negative relationships (as X increases, Y decreases).

Showing Evidence Tool

<http://educate.intel.com/en/thinkingtools/showingevidence>

Showing Evidence is an online tool for constructing an argument or hypothesis and supporting it with evidence. Using *Showing Evidence*, students make a claim, identify evidence, weigh the evidence, link the evidence to the claim by identifying its support or opposition of the claim, and then make a conclusion based on the evidence.

As evidence becomes attached to a claim, the pro and con arguments begin to stack up. This provides a visual indication as to whether the scales are tipping one way or another for a supported claim or an unsupported claim. Both the *Support* and the *Quality* ratings must be taken into consideration when weighing the evidence.



In the simplified version of the tool, students identify and describe the evidence and attach them to the claim, identifying whether the evidence supports or goes against the claim. They do not rate the quality or strength of the evidence.

The *Showing Evidence Tool* is most beneficial when students need to develop arguments supported by evidence or facts. Developing these arguments often involves analyzing conflicting information, sorting through complex ideas, or evaluating controversial topics. *Showing Evidence* can be used in a variety of projects to:

- Analyze experiments and draw conclusions
- Research hypotheses
- Understand different perspectives
- Investigate social issues
- Analyze characters or plots
- Evaluate credibility
- Apply knowledge
- Create a cost-benefit analysis
- Organize ideas for projects or essays
- Debate a controversial issue

Additional Resources

Intel® Education Help Guide

www.intel.com/education/helpguide

Although demos and tutorials are provided for the thinking tools, you can also use the Intel® Education *Help Guide* to view step-by-step instructions for each tool.

Introduction to the Thinking Tools

www.intel.com/about/corporateresponsibility/education/k12/tools.htm

You can access and view the home page of all the thinking tools.

Thinking Tools Webinar

<http://engageteachers.connectpro.acrobat.com/p55199827/?launcher=false&fcsContent=true&pbMode=normal>

You may be interested in viewing a prerecorded webinar where a Senior Trainer introduces the thinking tools and how they engage students in making ideas visible.