

	ArithmeTic - Toc
Objective	<p>Students will work in groups of four in examining a five-hour analog clock and its mathematical properties. Students will investigate patterns and relationships that exist in 12 hour addition and multiplication clock tables. Students will then use Webs to compare these patterns.</p> <p><a href="http://wiki.itap.purdue.edu/display/INSITE/Webs">http://wiki.itap.purdue.edu/display/INSITE/Webs</a></p>
Learning Environment	Students will work in their groups in class (2 class periods).
Types of Students	The students will be in post secondary education or college.
Standards	<ul style="list-style-type: none"> <li>• <b>Critical Thinking, Problem Solving, and Decision Making</b></li> <li>• <b>Research and Information Fluency</b></li> </ul> <p><a href="http://www.iste.org/AM/Template.cfm?Section=NETS">http://www.iste.org/AM/Template.cfm?Section=NETS</a></p>
Materials	Computers with internet access, Webs, ArithmeTic-Toc Activity Sheet Analog Clock Modulus Tables
Procedures	<ol style="list-style-type: none"> <li>1. The students will first easily learn how to use Webs to share their information.</li> <li>2. Introduce modular arithmetic with a 12-hour analog clock.</li> <li>3. Students will be broken up into groups of four to examine the analog clock.</li> <li>4. Assign student groups to create the multiplication and addition tables.</li> <li>5. Students will find their patterns and make an educated guess of what will happen to the analog clock in 12 hours.</li> <li>6. Students will share their information on Webs.</li> </ol>
Application	<p>Using Webs, students will share the following information:</p> <ul style="list-style-type: none"> <li>• Which properties of real numbers are also true for modular arithmetic?</li> <li>• What patterns and other relationships exist in the modulus tables.</li> </ul>
Evaluation	<p>While in their groups, students will present their information to the class and record this in their journal. The journal entry must include:</p> <ul style="list-style-type: none"> <li>• A summary of what they found, as well as why they think.</li> <li>• Are their findings accurate?</li> <li>• Any tables, charts, or other tools they used to organize their information.</li> </ul>

- An explanation of any patterns they found.

Students will be evaluated based on the following:

- Use of Webs communication – 10 pts.
- Explanation of their patterns – 20 pts
- Journal Entry – 20 points