

**3.5 The student will recall multiplication facts through the twelves table, and the corresponding division facts.**

<b>UNDERSTANDING THE STANDARD</b> <b>(Background Information for Instructor Use Only)</b>	<b>ESSENTIAL UNDERSTANDINGS</b>	<b>ESSENTIAL KNOWLEDGE AND SKILLS</b>
<ul style="list-style-type: none"> <li>• The development of computational fluency relies on quick access to number facts.</li> <li>• A certain amount of practice is necessary to develop fluency with computational strategies; however, the practice must be motivating and systematic if students are to develop fluency in computation, whether mental, with manipulative materials, or with paper and pencil.</li> <li>• Strategies to learn the multiplication facts through the twelves table include an understanding of multiples/skip counting, properties of zero and one as factors, pattern of nines, commutative property, and related facts.</li> <li>• In order to develop and use strategies to learn the multiplication facts through the twelves table, students should use concrete materials, hundred chart, and mental mathematics.</li> <li>• To extend the understanding of multiplication, three models may be used:               <ul style="list-style-type: none"> <li>– The equal-sets or equal-groups model lends itself to sorting a variety of concrete objects into equal groups and reinforces repeated addition or skip counting.</li> <li>– The array model, consisting of rows and columns (e.g., 3 rows of 4 columns for a 3-by-4 array) helps build the commutative property.</li> <li>– The length model (e.g., a number line) also reinforces repeated addition or skip counting.</li> </ul> </li> </ul>	<p><b>All students should</b></p> <ul style="list-style-type: none"> <li>• Develop fluency with number combinations for multiplication and division.</li> <li>• Understand that multiplication is repeated addition.</li> <li>• Understand that division is the inverse of multiplication.</li> <li>• Understand that patterns and relationships exist in the facts.</li> <li>• Understand that number relationships can be used to learn and retain the facts.</li> </ul>	<p><b>The student will use problem solving, mathematical communication, mathematical reasoning, connections, and representations to</b></p> <ul style="list-style-type: none"> <li>• Recall and state the multiplication and division facts through the twelves table.</li> <li>• Recall and write the multiplication and division facts through the twelves table.</li> </ul>