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Making Transitions from Concrete to Abstract Supports Response to Intervention

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The goal of an effective mathematics program is to enable each student to develop a strong foundation in number concepts, number sense, place value and basic math operations. Response to Intervention (RTI) is a multi-tier approach to providing the necessary support for every student to succeed. While some students enjoy quick comprehension of the concepts and operations taught in class, other students may find themselves confronted with a series of mysteries that don't seem to have a solution. RTI is designed to help those students who struggle with academic materials while also supporting those who find little difficulty.

Response to Intervention utilizes frequent assessment of students' progress to inform instruction so that each child receives the appropriate lesson at his or her level of comprehension. Individually, in small groups, or in one-to-one instruction, each student receives the correct lesson to help clear up misunderstandings. Classroom manipulatives demonstrate the various concepts taught in concrete ways. Once this is achieved, the trick is to help children move from concrete to more abstract thinking in a natural progression.

For example, the ten frame is used to build the understanding that various combinations of numbers can equal ten. Once children are familiar with this manipulative, they can move on to using a paper-and-pencil representation. Some children will need additional work in order to understand this transition. A few of them will require one-on-one instruction in order to make the connection. This needs to be followed up with additional experiences and practice to both deepen understanding and build fluency.

Online math games are one tool the teacher can use to help students make the transition. Games that utilize virtual manipulatives help students deepen their understanding of math concepts and number sense so that the operations make more sense. As they clear up the mysteries, math games also provide appropriate practice so that students achieve mastery before moving on to the next step. This helps them avoid confusion.

Online math games that continuously adjust to the student's understanding help teachers meet the challenge of providing differentiated instruction that begins where the child is and proceeds in a logical way to the next step. The ideal system will support deeper understanding and adequate practice. This helps the child develop confidence and a sense of achievement as the mysteries of math are solved and the joy of competency grows.

At each stage of Response to Intervention, online math games serve to reinforce concepts taught in class, deepen understanding and provide important practice to build fluency. Tier I students can quickly master the concepts that have them struggling so they can move on with their peers. Tier II students are met at their own level and proceed at a slower pace so that the ideas they are developing can be thoroughly mastered. Tier III students find extra support and encouragement so they experience success while building the strong foundation of mathematics understanding.

By using online math games appropriately, teachers can continually assess student progress in a Response to Intervention system and meet the needs of learners who struggle with mathematics concepts. Engaging students in a variety of learning experiences strengthens the foundation they will need to build increasingly sophisticated math understandings and concepts.

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Jim Wheelin writes about many different educational topics for parents, kids and teachers. Lately, he has been on the lookout for learning programs that offer a a response to intervention strategy to support his kids' development. Jim also encourages other to test educational games such as the ones offered at a http://www.dreambox.com/math-intervention.

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