



# Fraction Nation


Aligns to Title I, Part A  
IMPROVING BASIC PROGRAMS

The purpose of *Title I, Part A—Improving Basic Programs* is to ensure that all children have a fair, equal, and significant opportunity to obtain a high-quality education and reach, at a minimum, proficiency on challenging State academic achievement standards and state academic assessments. Title I schools must develop a comprehensive plan to improve teaching and learning. The following chart shows how **Fraction Nation** can support a Schoolwide Title I program. The criteria are drawn from the Federal *Title I Final Rules and Regulations*, posted at:

<http://www2.ed.gov/programs/titleiparta/legislation.html>

Components of a Title I Program	Fraction Nation
<p>Provide opportunities for all students to meet the State’s proficient and advanced levels of student academic achievement, particularly in the areas of math, reading/language arts, and science</p>	<p><b>Fraction Nation</b>, Grades 4-8, is designed to develop the critical foundations of fraction and decimal fluency—conceptual understanding and procedural knowledge. <i>Fraction Nation</i> delivers fraction and decimal fluency through explicit instruction, adaptive software, extensive practice, and ongoing assessments. The adaptive technology develops students’ skills in rational number comparison, estimation, equivalence, addition, and subtraction.</p> <p><i>Fraction Nation</i> is organized into 9 topics and 64 lessons, which systematically build students’ fraction fluency. In manageable chunks, each self-paced lesson focuses on one skill or concept to gradually build students’ fluency. Topics A through D establish student understanding of fraction quantity, and build skills in estimating and comparing fraction quantities. Topics E through G teach students about equivalence. Finally, building on quantity and equivalence, Topics H and I teach students about the computation procedures for addition and subtraction. Each topic is introduced with visual representations to provide a concrete anchoring for symbolic work.</p> <p><u>Operations &amp; Algebraic Thinking</u></p> <p>State Standards call for providing all students with a solid foundation in fractions and decimals—preparing them for success in Algebra, college, and career. These standards expect students to understand the meaning of fractions and decimals through activities that make use of visual models, such as arrays and to employ technology to integrate what they are learning. To meet these standards, <i>Fraction Nation</i> provides an introduction to algebraic thinking with a focus on quantity, equivalence, and addition and subtraction. Further, the program utilizes strong visual models, such as number lines and fraction strips, to build an integrated understanding of the number system.</p> <p style="text-align: right;">CONTINUED</p>

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<p>Provide opportunities for all students to meet the State’s proficient and advanced levels of student academic achievement, particularly in the areas of math, reading/language arts, and science <i>Continued</i></p>	<p><u>Number &amp; Operations</u></p> <p>State Standards call for students to understand place value for single- and multi-digit operations with whole numbers and decimals. Additionally, these standards expect students to develop an understanding of fractions as numbers, extending to equivalence, ordering, and operations with fractions. Students are also required to build fractions from unit fractions and understand decimal notation. To meet these standards, <i>Fraction Nation</i> helps students gain and retain concepts of whole numbers and decimals to the hundredths through targeted instruction, corrective feedback, and adaptive practice activities.</p> <p><u>The Number System</u></p> <p>State Standards ask students to apply and extend previous understandings of operations to fractions and compute fluently with multi-digit numbers. In addition, students are required to find common factors and multiples. To meet these standards, <i>Fraction Nation</i> embeds systematically constructed fraction fluency practice throughout the 64 lessons. The program also provides differentiated instruction, extensive practice, and self-paced opportunities for Tier 2 and 3 intervention students in sixth grade and above.</p> <p><u>Expressions &amp; Equations</u></p> <p>State Standards place a central importance on the ability to solve real-life and mathematical problems using numerical expressions. Students should be able to extend understanding of arithmetic to algebraic expressions, generate equivalent expressions, and understand connections between proportional relationships. <i>Fraction Nation</i> helps build connections to proportional relationships across whole numbers, fractions, decimals, proper and improper fractions, and fractions with different denominators through a consistent use of real-world measurements across topics.</p>
<p>Use of academic assessments in order to provide information on, and to improve, the achievement of individual students and the overall instructional program</p>	<p><i>Fraction Nation</i> provides placement and ongoing assessments to track student performance and help teachers target those students who are in need of additional support.</p> <ul style="list-style-type: none"> <li>▪ <u>Pre- &amp; Post-Assessments</u>—In the initial placement assessment, <i>Fraction Nation</i> measures a student’s baseline of fraction fluency, and then systematically places students into the program to provide each student with an instructional path. In both the initial and final assessments, students are assessed in three key areas—quantity, equivalence, and addition &amp; subtraction.</li> <li>▪ <u>Continuous Assessment</u>—<i>Fraction Nation</i> regularly checks for mastery in the <i>Perform</i> section of each lesson. As students move through each topic, the program tracks student performance. At the end of a topic, the program either promotes a student to the next topic, or guides the student through additional instruction and practice. The student will receive new practice sets, with new problems, and different assessments.</li> </ul> <p style="text-align: right;">CONTINUED</p>

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<p>Use of academic assessments in order to provide information on, and to improve, the achievement of individual students and the overall instructional program <i>Continued</i></p>	<p><i>Fraction Nation</i>, with the assistance of the <i>Scholastic Achievement Manager (SAM)</i>, tracks students’ progress and performance throughout their use of the program. SAM allows teachers and district leaders to produce reports on individual students, specific groups, an entire school, or district. A variety of reports display a range of performance measures, including fraction proficiency, fluency growth, and program usage. These reports help ensure that <i>Fraction Nation</i> is implemented correctly throughout the year and to monitor students’ fraction fluency growth.</p>
<p>Use effective methods and instructional practices that are based on scientifically based research and that:</p> <ul style="list-style-type: none"> <li>▪ Strengthen the core academic program</li> <li>▪ Provide an enriched and accelerated curriculum</li> <li>▪ Increase the amount and quality of learning time</li> </ul>	<p><i>Fraction Nation</i> is grounded in research-validated principles that drive fraction instruction and deliver fraction fluency. The program is anchored in four core research foundations:</p> <p><u>Strong Visual Models</u></p> <p><i>Fraction Nation</i> builds students’ understanding of rational number concepts through powerful visual models including number lines, fraction strips, circles, rectangles, and sets. To build an integrated understanding of the number system, <i>Fraction Nation</i> focuses on the proven-effective number line to help students to transition from concrete to abstract models.</p> <p><u>Worked Examples</u></p> <p><i>Fraction Nation</i> lessons combine worked examples, in a step-by-step tutorial format, with practice to help students master key skills and strategies. Lessons are approximately 15 minutes and focus narrowly on individual skills or strategies, ensuring that students can practice each new skill immediately after it is modeled.</p> <p><u>Computation with Understanding</u></p> <p><i>Fraction Nation</i> integrates conceptual and procedural understanding, linking visual representations with fraction symbols and procedures. To prepare students for the symbolic procedures necessary for fraction equivalence tasks, the program carefully introduces sub-skills in earlier lessons using fraction strips and other visual models. Subsequent lessons gradually move students to exclusive use of symbolic procedures.</p> <p><u>Support for Cognitive Processing</u></p> <p><i>Fraction Nation</i> provides an environment that takes into account the working memory demands of fractions and decimals. The program avoids cognitive overload with a careful sequence of small steps; each lesson introduces a constrained amount of new information and skills.</p> <p> For more information regarding the research foundations and content advisors for <i>Fraction Nation</i>, please see:  <a href="http://teacher.scholastic.com/fraction-fluency/fraction-nation/research-foundation.html">http://teacher.scholastic.com/fraction-fluency/fraction-nation/research-foundation.html</a></p> <p style="text-align: right;">CONTINUED</p>

<p><b>Components of a Title I Program</b></p>	<p><b><i>Fraction Nation</i></b></p>
<p>Use effective methods and instructional practices that are based on scientifically based research and that:</p> <ul style="list-style-type: none"> <li>▪ Strengthen the core academic program</li> <li>▪ Provide an enriched and accelerated curriculum</li> <li>▪ Increase the amount and quality of learning time</li> </ul>	<p><b>STRENGTHEN THE CORE ACADEMIC PROGRAM</b></p> <p>The <i>Fraction Nation</i> student software delivers targeted instruction and step-by-step guided practice in three key areas—fraction &amp; decimal quantity, equivalence, and addition &amp; subtraction. Instruction is divided into 64 lessons grouped into the following nine topic areas:</p> <ul style="list-style-type: none"> <li>▪ Introduction to Fractions</li> <li>▪ Learning About Fractions</li> <li>▪ Number Lines &amp; Other Models</li> <li>▪ Learning About Decimals</li> <li>▪ Introduction to Equivalence</li> <li>▪ Equivalent Fractions</li> <li>▪ Equivalent Decimals</li> <li>▪ Adding &amp; Subtracting</li> <li>▪ More Adding &amp; Subtracting</li> </ul> <p>Each of the program’s lessons begins with a multimedia tutorial that introduces or extends fractions and decimal concepts through animated visual models. Lessons also include guided practice activities, which allow students to explore visual models in a hands-on manipulative environment through interactive fraction strips and number lines.</p> <p><b>PROVIDE AN ENRICHED AND ACCELERATED CURRICULUM</b></p> <p><i>Fraction Nation</i> provides an engaging, individualized experience where learning about fractions and decimals is fun and rewarding. The <i>Student Roadmap</i> indicates a student’s progress in <i>Fraction Nation</i>. The path is comprised of nine topic checkpoints and informs the student of what topic and lesson he or she will be working during the daily session. Throughout the program, unique surveys engage students’ interest while also demonstrating a real world use of fractions. Students immediately receive their performance assessment scores at the end of each lesson. As a reward for personal success, students select animated citizens to appear in their customized <i>Roadmap</i>. In the performance assessment, <i>Fraction Nation</i> citizens cheer students as they demonstrate progress.</p> <p><b>INCREASE THE AMOUNT AND QUALITY OF LEARNING TIME</b></p> <p><i>Fraction Nation</i> provides an individualized, self-paced experience for each student. Students will achieve the best results when they complete at least one 15-minute lesson on the software, 3-5 times per week. The lessons have no pre-set time limit, but the average time is 15 minutes per lesson. Students may exit a lesson early and then return to the activity on which they were working. The program allows students to take the time they need to achieve fraction fluency; students may complete multiple lessons per day or break one lesson into multiple sessions.</p>
<p>Address the needs of all students in the school, particularly the needs of low-achieving students and those at risk of not meeting the State student academic achievement standards</p>	<p><i>Fraction Nation</i> provides an environment that takes into consideration the cognitive processing demands of fractions and decimals. The program avoids cognitive overload with a careful sequence of small steps. Each lesson introduces a constrained amount of new information and skills. The instruction uses a limited number of representations and definitions for fractions and is consistent and coherent.</p> <p style="text-align: right;">CONTINUED</p>

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<p>Address the needs of all students in the school, particularly the needs of low-achieving students and those at risk of not meeting the State student academic achievement standards <i>Continued</i></p>	<p>Pacing is self-directed by each student, who can take as much or little time on a task as needed. The supports and real-time feedback create a supported environment to reduce math anxiety, and therefore create a positive cycle for students building competence and confidence.</p> <p><i>Fraction Nation</i> recognizes low performance in practice and assessment. If mastery is not indicated, a student can repeat a lesson up to three times, with new practice sets, problems, and assessments. The practice activities provide individual, differentiated experiences that are responsive to the various cognitive needs of different students. Students perform each task with visual, auditory, and text feedback. Students who make errors receive immediate corrective feedback and support.</p> <p><u>English-Language Learners</u></p> <p><i>Fraction Nation</i> includes many support strategies for English-Language Learners. Throughout the program, students can utilize the Closed Captioning option, which can be turned on or off. Students can also utilize a control called “Play-by-Play” which slows the pace of instruction and allows students to see and hear instruction sentence-by-sentence. Students can listen repeatedly to any <i>Learn</i>, or targeted instruction, that they need to review. Students are also able to use the English-Spanish Glossary of Terms that will assist English-Language Learners with the understanding of the consistent mathematical language used throughout the program.</p> <p><u>Students In Special Education</u></p> <p>Through the use of technology, <i>Fraction Nation</i> is adaptive in numerous ways to the individual cognitive needs of students in Special Education. The targeted instruction includes Universal Design Features, such as:</p> <ul style="list-style-type: none"> <li>▪ Caption text that can be shown or hidden</li> <li>▪ Playback controls to pause, play, and rewind</li> <li>▪ Progress indicators at the program and lesson levels to help students self-monitor their path to mastery</li> <li>▪ Universal Design Features, such as Play-by-Play mode, which displays the instructional animations in a sentence-by-sentence way for students who need a slower pace, language supports, or attention supports</li> <li>▪ Scaffolded feedback to guide students to the correct answer during practice</li> </ul>
<p>High-quality and ongoing professional development for teachers and principals</p>	<p><u><i>Fraction Nation</i> Implementation Training</u></p> <p>In this training, teachers, coaches, and administrators learn how to effectively implement <i>Fraction Nation</i>, including exploring the software and navigating the management system, analyzing data-rich reports to inform instruction and monitor progress, and differentiating instruction.</p> <p style="text-align: right;">CONTINUED</p>

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<p>High-quality and ongoing professional development for teachers and principals <i>Continued</i></p>	<p><u><i>Fraction Nation</i> Interactive Webinar</u> This interactive webinar provides teachers, coaches, and administrators with the tools to successfully get started using <i>Fraction Nation</i>.</p> <p><u>In-Classroom Support</u>—RECOMMENDED, at an additional cost Scholastic consultants provide teachers with individualized support and focused strategies side-by-side in the classroom. They build relationships with teachers to support on-model implementation, classroom management, program monitoring, and data-driven instruction. A year-long customized plan of in-classroom visits provides teachers with in-person, individualized support and focused strategies for the classroom. For the best results, Scholastic recommends monthly visits for all teachers.</p>
<p>Involve parents in the planning, review, and improvement of the schoolwide program plan</p>	<p>A Parent Letter, available in English and Spanish, explains the goal of the <i>Fraction Nation</i> program and outlines where the student is on the roadmap to fraction fluency. Student reports that display students’ progress and usage in the program can be shared with parents during conferences or sent home as progress indicators. Teachers are able to print Award Certificates as students master different topics in <i>Fraction Nation</i>. The certificates can be shared with parents, as well as used as examples of student achievement and progress.</p>
<p>Coordination and integration of Federal, State, and local services and programs</p>	<p><i>Fraction Nation</i> can be integrated with funds from state, local, private, and other sources. The federal funding programs for which it qualifies include:</p> <ul style="list-style-type: none"> <li>▪ Title IA—Improving Basic Programs</li> <li>▪ Title I—School Improvement Grants (SIG)</li> <li>▪ Title I—Supplemental Education Services (SES)</li> <li>▪ Title III—English Language Acquisition</li> <li>▪ 21<sup>st</sup> Century Community Learning Centers (21CCLC)</li> <li>▪ Race to the Top—District (RTT-D)</li> <li>▪ Investing In Innovation (i3)</li> </ul>