

# Survey Results: Gizmo's Role in Improving Student Science Knowledge, Curiosity, and Confidence

## Executive Summary

*Teacher surveys conducted in May 2024 revealed high satisfaction levels with Gizmos. Teachers value Gizmos for their ability to engage students, enhance curriculum, and provide practical, interactive learning experiences that might not be feasible in a traditional classroom setting. As a result of using Gizmos, teachers reported increased engagement, curiosity, and confidence in their students. Additionally, 98% of the teachers said they would recommend Gizmos to their colleagues. The most helpful features of Gizmos for students' learning experiences were their interactivity, visual and graphical representation, engagement and motivation capabilities, and applications to real-world scenarios.*

ExploreLearning conducted an online survey of teachers who used Gizmos during the 2023–2024 school year. A total of 120 middle and high school teachers completed the survey, which included both rating scale and open-ended questions, on the following aspects of their experiences:

- Their goals for using Gizmos in the classroom
- Areas of student improvement observed from using Gizmos
- The features of Gizmos that most supported student learning

## Using Gizmos to Meet Student Learning Goals

Teachers were asked about their reasons for using Gizmos in the classroom in an open-ended question. Overall, teachers value Gizmos for their ability to engage students, enhance curriculum, and provide practical, interactive learning experiences that might not be feasible in a traditional classroom setting.

### Visualization and Conceptual Understanding

The simulations help students visualize and understand complex scientific and mathematical concepts. Teachers appreciate that Gizmos make abstract ideas more concrete and accessible through visual and interactive representations.

- *"The ability to make big idea topics easier to visualize through interactive activities and the animations."*
- *"It is a great visual explanation for what we are learning in class. It also helps the students work through these things in groups instead of just listening to lecture."*

### Data Analysis and Inquiry-Based Learning

Gizmos facilitate inquiry-based learning by allowing students to manipulate variables, run multiple trials, and analyze data. This helps develop critical thinking and scientific inquiry skills.

- *"Gizmos offers a laboratory platform for students to manipulate variables and collect data; the data is graphed, and students can draw conclusions."*
- *"For the Claims-Evidence-Reasoning (CER) method of learning."*
- *"It was one of the easiest introductions to inquiry-based lab work, and the careful step-by-step, what-do-you-notice-now approach slows them down and helps prevent them from jumping to simplistic, inaccurate conclusions."*

### Engagement and Interactivity

Many teachers emphasize that Gizmos are highly engaging and interactive, capturing students' attention and making learning enjoyable. Teachers appreciate the hands-on, interactive nature of the simulations, which help maintain student interest and participation.

- *"Interactive nature allows students to explore concepts in a fun way."*
- *"The simulations are extremely useful for running multiple trials and showing the change in data and the interactive piece is very engaging for our learners."*
- *"Gizmos adds an exploratory hands-on learning experience to the content. It allows students to adjust measurements in geometry to 'see what will happen.'"*

### Independent Learning and Differentiation

Gizmos allow students to explore and learn independently at their own pace. This is particularly useful for differentiating instruction to meet diverse learning needs, including providing additional support for ELL and SPED students. The ability to modify supplementary materials was appreciated as well.

- *"I love that there is a Word option for the student sheets so that I can modify as I need to."*
- *"Students can work at their own pace using the simulation to create an experience that can't be done in the classroom for various reasons."*
- *"I use it in place of physical labs. This way of doing labs helps my ELL and SPED students who need to have things slowed down and repeated."*

### Accessibility and Practicality

Gizmos enable lab experiences that are often impractical or impossible to conduct in a physical classroom due to lack of resources, time, and/or equipment. Virtual simulations offer a safer and cleaner alternative to physical labs, particularly for experiments involving hazardous materials. This is especially beneficial for large classes, virtual schools, or students who missed in-class labs.

- *"Gizmos gives my virtual students the opportunity to carry out scientific investigation and labs."*
- *"Labs where safety or practicality is a concern for getting students to experience the information."*
- *"They allow me to do labs and simulations that, especially in large classes, we don't have the space, equipment, or time to do."*

### Supplementing and Enhancing Curriculum

Teachers use Gizmos to enhance their existing curriculum. The simulations can be used to introduce, reinforce, or review topics, making them a versatile tool for supplementing.

- *"Gizmos gives students an opportunity to build their reading, writing, and math skills while working on targeted content."*
- *"To supplement discussions in the classroom or engage students in a phenomenon at the beginning of a new unit."*
- *"Gizmos provides a way for students to explore a new concept and/or review concepts, especially with students who lack prior knowledge from earlier grades or who struggle to learn with readings."*

### Standards Alignment and Preparedness

Teachers appreciate that Gizmos lessons are standards-based, helping students build necessary skills and knowledge in alignment with educational requirements. This prepares students for assessments and deeper understanding of scientific methodology.

- *"Gizmos gives students a better comprehension of the scientific methodology and leads them to a higher-level depth of knowledge. Virtual hands-on activities and assignments are aligned with the district standards."*
- *"Gizmos prepares students for unit tests and any other assessment provided in our classroom."*
- *"It aligns with Biology Standards and can be used for a variety of reasons- make up work/in place of a lab/additional reinforcement of concepts."*

## Areas of Student Growth Observed by Teachers

Teachers overwhelmingly agreed that Gizmos met their expectations in terms of student learning. All teachers noted they saw some degree of improvement in student knowledge, with 92% of teachers observing moderate – large learning gains. They agreed that Gizmos was aligned with the student learning outcomes in their state standards (97%) and curriculum (97%).

Teachers were also asked about the specific areas where they observed student growth because of using Gizmos. Teachers provided favorable ratings in all areas, with the highest agreement for engagement, curiosity, and student confidence.



Agree that Gizmos supports  
student engagement



Agree that Gizmos supports  
student curiosity



Agree that Gizmos improves  
student confidence

## Features of Gizmos That Support Positive Student Outcomes

Teachers were asked about which features of Gizmos were most helpful in supporting student success with the program. Teachers reported that the most helpful features of Gizmos for students' learning experiences were their interactivity, visual and graphical representation, alignment with curriculum, and engagement and motivation capabilities.

### Interactivity and Manipulation:

- Interactive features, such as the ability to manipulate variables and data, were frequently mentioned as beneficial for student engagement and learning.
- Features allowing students to experiment and see the effects/results of their actions were highly valued.
- The ability to perform the same experiment multiple times was also highlighted as a benefit.

### Visual and Graphical Representation:

- The visual nature of Gizmos, including clear and dynamic graphs, helped students understand complex concepts.
- Tools to collect, analyze and graph data were particularly useful for drawing meaning and conclusions.
- Visual effects and animations were engaging and made learning more accessible, especially for students with disabilities.

### Content and Curriculum Alignment:

- Learning guides and modifiable worksheets that align with state standards were beneficial.
- Pre-made worksheets, assessment questions, and progression through concepts were useful for instruction.
- Gizmos simulations also allowed students to apply knowledge from the curriculum to addition real-world scenarios.

### Student Engagement and Motivation:

- Features that kept students engaged, such as game-like interfaces and interactive quizzes, were appreciated.
- The ability for students to work at their own pace and receive immediate data feedback helped maintain interest.
- Some teachers noted that the ease of use and straightforward instructions empowered students and reduced the need for constant teacher assistance.

97%

Agree that Gizmos is an easy tool for teachers to use

93%

Agree that Gizmos is an easy tool for students to use

96%

Agree that Gizmos made lesson planning easier

94%

Agree that Gizmos helped them meet teaching goals

98%

Would recommend Gizmos to their colleagues

## STUDENT SUCCESS STORIES

**We asked teachers to share notable success stories they observed this year.**

*“I’ve been teaching my subject matter for 5 years now. After starting to use Gizmos, my students scored the highest in the entire county on the end-of-year exam in Biology.”*

*“Parents love working with their kids on the Gizmos. The parents email me about how their kids are taking notes over the weekend.”*

*“There was a student who took the quiz and got a 1 out of 5 on it. She was disheartened. I told her it was okay to re-take the quiz. She went through the packet of material, interacted with the Gizmo and then retook the quiz. She got a 4 out of 5, was proud of herself and told me. I could then encourage her as well.”*

*“When teaching students about convection cells, I had multiple students able to grasp the concept through the Gizmo, because they could see the temperature changes and density changes. This was difficult to do without simulating it, and helped students succeed!”*

*“We had a student miss school for 7 weeks due to surgery. I was able to keep her active and up to date utilizing Gizmos to parallel our classroom activities. She could work at her pace, in her time and feel connected to her classmates.”*

*“I had a student who did not understand the concept of how an earthquake epicenter could be found using P-waves and S-waves. As she continued to work through the Earthquake 1 and Earthquake 2 labs, her confidence and understanding really blossomed. When she found her first epicenter after a lot of struggles, you could see the twinkle in her eye and the joy in her voice on finding the point and overcoming an obstacle.”*

*“I love having them get in small groups to complete the STEM Cases and Gizmos. I frequent each group and love to hear the conversations of students making sense of the concepts.”*

*“I teach struggling learners. A third of my students have an identified learning plan through an IEP or 504 Plan. Gizmos helps by allowing my students to engage in the scientific process.”*