

Keyboard Accessibility for ExploreLearning Gizmos™



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“The power of the Web is in its universality. Access by everyone regardless of disability is an essential aspect.”¹

1. Tim Berners-Lee, W3C Director, physicist, and inventor of the World Wide Web.

For Gizmos on the ExploreLearning site accessibility is a required feature. We strive to achieve accessibility in both our Gizmos and in HTML. This document will discuss the keyboard accessibility that is found in the Gizmos.

1.0 Keyboard Accessibility

In the accessible Gizmos there are several keys that allow users to have full control of the Gizmo via the keyboard. With the Shockwave Plug-in one must first click the mouse on the Gizmo (to make it the active element of the page). After making the Gizmo active the primary keys are shown in Table 1, “Proper Keys for Accessibility in EL Gizmos,” on page 1. These keys can be used to control all features of the Gizmo.

TABLE 1.

Proper Keys for Accessibility in EL Gizmos

Main Key	Alternate Key	Function
n	TAB	move to next accessible element
RETURN	ENTER	activate accessible element
j (or J)	left arrow	send left event to accessible element
l (or L)	right arrow	send right event to accessible element
i (or I)	up arrow	send up event to accessible element
k (or K)	down arrow	send down event to accessible element
SHIFT	SHIFT	used for additional functionality with keys above
? or /	? or /	shows tool tip associated with active element

When making use of keyboard shortcuts, many of us at ExploreLearning have gotten used to using the Alternate Key set. This set works in most situations, but with certain screen readers the Main Key set should be used. Both sets are fully supported in the accessible Gizmos.

The easiest way to get familiar the keys is to go ahead and start using them in a Gizmo. In an accessible Gizmo (that has been clicked on to make it active) you can start pressing the TAB key (or the n key). The active element will be highlighted with the accessibility region indicator as shown in Figure 1, “Common Gizmo Elements Highlighted During Keyboard Access,” on page 2.

FIGURE 1.

Common Gizmo Elements Highlighted During Keyboard Access



After making a checkbox the active accessible region you can press RETURN or ENTER to flip the checkbox from off to on (or on to off). Whenever you have made a button active with the accessible region you can press RETURN to press the button. If you TAB to a slider knob and it become highlighted, the left arrow (or J key) can be used to move the knob to the left (which will often decrease the value of the slider). To move the slider knob to the right, the right arrow key (or the L key) can be pressed.

To manually enter a value in the slider field the numerical value should be highlighted. Then press RETURN. This activates the text so you can directly type in a value (such as 3.5). To indicate that you are done press the RETURN key after the selected number has been typed.

As was stated in Table 1, “Proper Keys for Accessibility in EL Gizmos,” on page 1, the SHIFT key often adds functionality to another key. In terms of moving from one element to another by pressing the TAB key, you can also hold down the SHIFT key when pressing TAB, and the active element will move backwards. When moving a slider knob with the left or right arrows, holding down the SHIFT key will cause the slider knob to move ten times further than it would when not holding the SHIFT key.

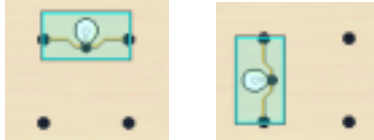
In many Gizmos objects need to be moved around on the screen. Once an object is active, the left, right, up, and down arrows will generally move the object around on the screen. In some cases holding the SHIFT key down (in

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combination with the arrow keys) will rotate the object. In the Circuits Gizmo that is exactly how the various circuit elements can be moved around on the circuit board (shown in Figure 2, "Objects in Circuit Gizmo Before and After Rotation," on page 3).

FIGURE 2.

Objects in Circuit Gizmo Before and After Rotation



For certain Gizmos custom key combinations may be required for full keyboard accessibility due to the complexity of the Gizmo functionality. In those cases more information will be available in the Exploration Guide associated with the Gizmo.

2.0 Summary

It would be great if our Gizmos had 100% accessibility for people with visual, hearing, physical, cognitive, and neurological disabilities, but a perfect score is rarely achieved in the real world. As software improves from a technological standpoint we continue to conduct research in to ways to improve the accessibility of the Gizmos (such as text-to-speech options, and auditory graphing representations).

FIGURE 3.

Graphical Logo Associated with Accessible Gizmos



More than 70% of our current Gizmos have keyboard accessibility (when the logo shown in Figure 3, "Graphical Logo Associated with Accessible Gizmos," on page 3, is shown on the Gizmo Details page). At the present time no Gizmos are released without full keyboard accessibility, so the percentage of the accessible Gizmos continues to increase over time. By the end of 2004 we expect that more than 90% of our Gizmos will be accessible.

If you would like more information please send an email message to:

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