Designing for Accessible Animation

In this module, you'll learn:

- What animation is.
- Characteristics of accessible animation.
- How to ensure the animations in your design are accessible.
- Best practices for creating accessible animation.

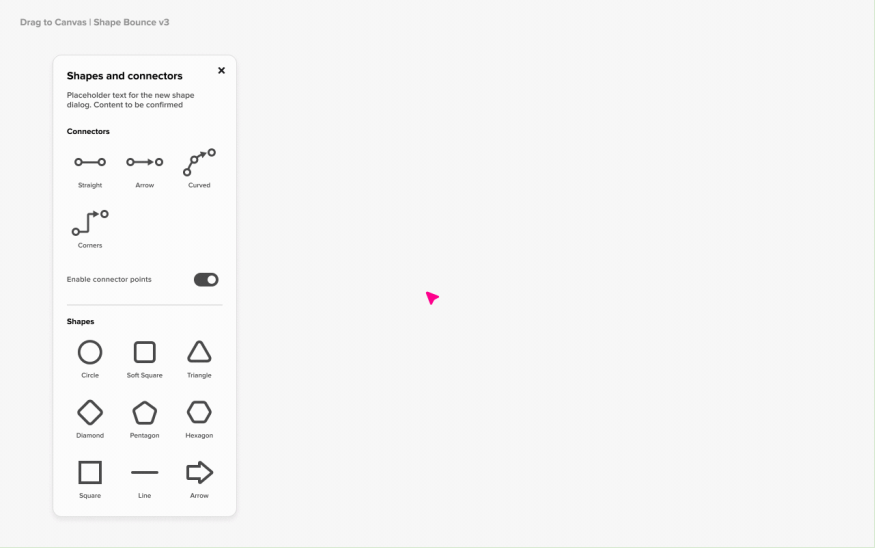
What is animation?

Animation is moving content such as carousels, sliding modals, tickers, advertisements, games, videos, GIFs, and blinking or flashing motions. There are four types of animation to consider when strategizing to create an accessible design: **critical**, **background**, **decorative**, and **micro**.

What does that mean?

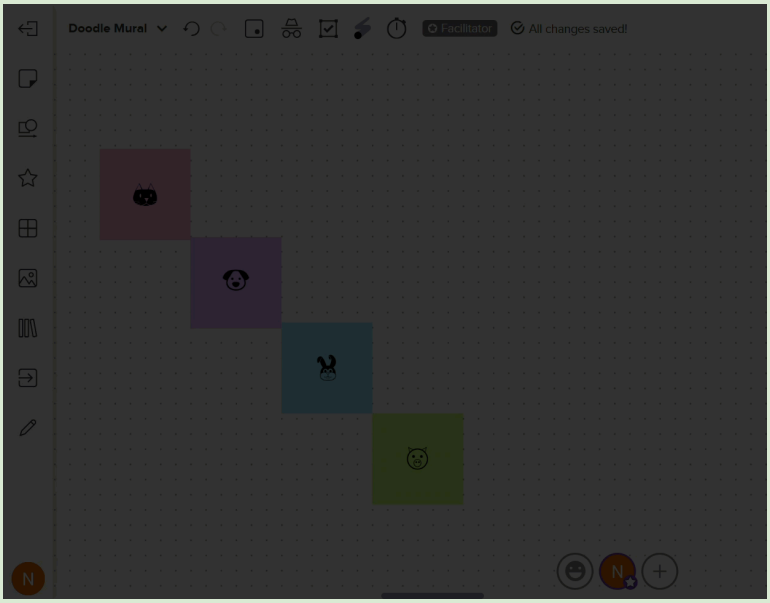
Critical animation: Animation that's crucial to understanding the content or branding of a digital product or webpage. Without it, meaning or context may be lost.

- **Example**: When you drag objects to a mural canvas, they seem to glide across the screen as shown below. This movement is critical to the playfulness of the MURAL brand but it also serves as a visual guide that helps the end user drop the object.



Background animation: Animation that occurs in the background of a digital product or webpage to draw attention to information, elements, or tasks.

- **Example**: When you click an icon in the left sidebar menu of a mural, a panel slides out and the mural shifts to the right.



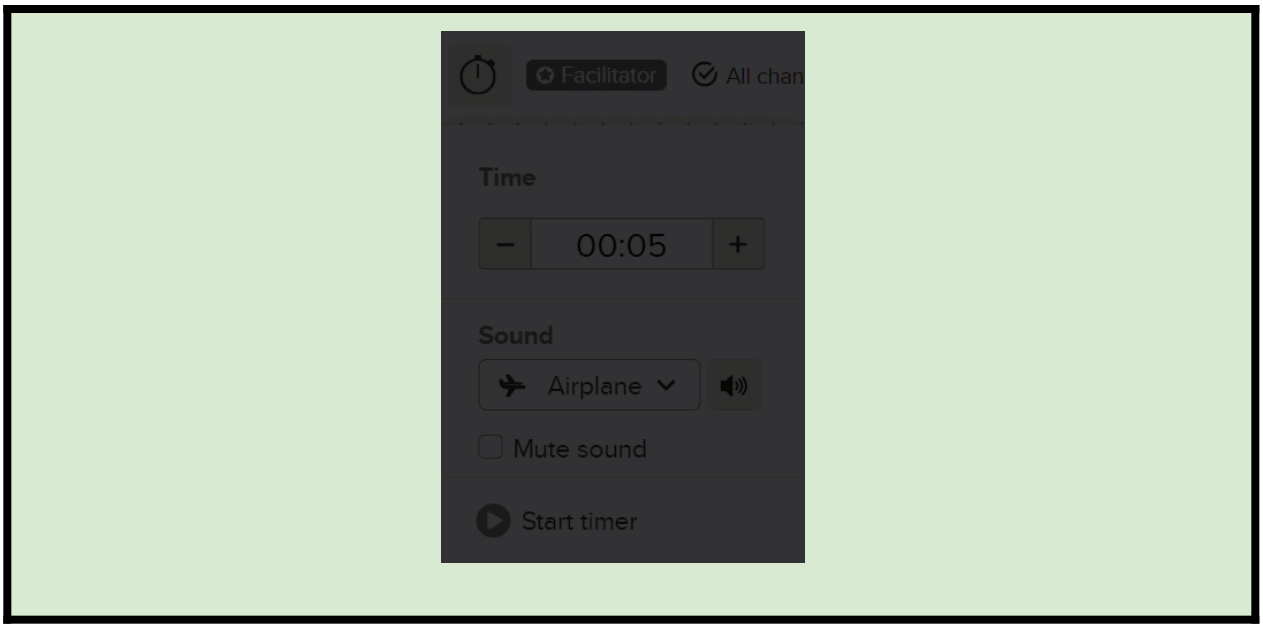
Decorative animation: Animation that is not needed to understand the context on the page, but is simply used for visual interest.

- **Example**: The dancing llama icon in MURAL.



Micro animation: A small animation or single element that serves the purpose of drawing end users' attention to a task or feature.

- **Example**: MURAL's timer feature uses changing colors to represent a clock counting down. The alarm "buzzes" when time is up.



What are the characteristics of accessible animation?

Whenever possible, animation should function as an enhancement to content, not a requirement for understanding it.

Accessible animation:

- Is safe to use and recognizable to screen readers and other assistive devices.
- Enables all end users to understand it.
- Can be controlled by end users.

You'll learn more about each of these characteristics in the following sections.

Why is accessible animation important?

People with and without disabilities can benefit from animation, especially when it's safe and inclusive. It's crucial that designers follow WCAG (Web Content Accessibility Guidelines) to ensure animation meets accessibility standards and is safe for people with motion sensitivity or photosensitivity. WCAG helps designers and developers avoid animation that causes seizures, nausea, dizziness, and headaches.

How do I ensure animation is accessible?

Motion and animation are critical to the fun, collaborative nature of the MURAL app. **As a MURAL designer, it's important to keep your designs consistent with the playful voice and functionality of our products while also maintaining accessibility standards**.

When deciding whether to include animation in your design, you'll need to determine how important the animation is, how safe it is, and what accessible alternatives you can provide. You'll need to use animation that's consistent with our branding without overdoing it.

The following recommendations can guide you in creating accessible animation.

Don't be flashy!

Some moving content, especially content that flashes, blinks, or flickers, can trigger seizures, headaches, nausea, and dizziness. It's best to start from a place of "no-flash" whenever possible. However, if you do use flashing content, be sure to follow the three–flash threshold requirement: **No content should flash more than three times per second**.

What does that mean?

Three-flash threshold: Content should have no more than three general flashes and/or no more than three red flashes within any one-second period.

- **Example**: A movie with a scene involving very bright lightning flashes is edited so that the lightning only flashes three times per second.

Visit Understanding Success Criterion 2.3.1: Three Flashes or Below Threshold for more information.

Follow these requirements for to ensure your content is safe for viewing:

- **Keep flashes, flickers, and blinks at or below three occurrences per second**. This includes GIFs, carousels, objects, backgrounds, and other moving content.
- **Use caution with how much moving content you include.** Too much flickering between GIFs and moving backgrounds is also unsafe.
- **Avoid fully saturated reds for any flashing content**, **which can also trigger seizures**.
- **Provide a way to pause**, **stop**, **or hide any flashing content before it begins**.
- **Warn end users of any flashing content on the page before it begins**.

Download this free PEAT (Photosensitive Epilepsy Analysis Tool) to help you identify seizure risks in animated content.

Avoid unnecessary and unexpected animation

Whenever possible, animation should:

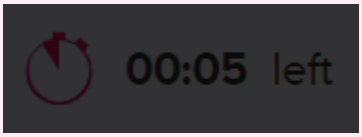
- **Be used sparingly.** Include as little animation as you can. Reduce busy, complicated, or layered animations to avoid cognitive overload.
- **Serve a purpose.** Stick to what's critical to your design whenever possible. Avoid unnecessary animations like parallax scrolling, where the foreground and background scroll at different speeds.
- **Enhance content, not replace it.** Needless animation can be distracting and confusing, especially when there's no accessible alternative.
- **Work as expected.** When end user actions trigger unexpected animation, it can cause distraction or nausea. For example, if buttons, links, or objects trigger animation in other places on the page, this motion can draw attention away from tasks.

Ask if it's critical, important, or unnecessary

As a designer, you'll need to decide whether the animation you want to use is critical, important, or unnecessary. Making this distinction can help you determine what to include.

Examples:

- **Critical animation**: The timer in MURAL features a clock counting down to warn collaborators of how much time is left.



- **Important animation**: The dancing llama. While it's not critical, it's important to the playfulness of the MURAL brand and helps keep our branding consistent throughout the app.



- **Unnecessary animation**: If the MURAL canvas featured moving content in the background, it would be a distraction to end users and prevent them from customizing their own backgrounds.

Ask yourself the following questions:

- **Is this animation critical to understanding the content or branding of a digital product?** The animation isn't critical if the end user can understand the content without it or if it isn't consistent with the branding. Animation is rarely critical!
- **Does this animation provide an *additional way* to understand the content or the brand?** Important animation will enhance, not detract, from your understanding. It's a helpful *addition to* the content or branding, but it's not critical.
- **If I remove this animation, is the design or content affected in a negative way?** Unnecessary animation adds little to no value. If you remove it, your audience won't miss it. *Decorative animation is almost always unnecessary but unnecessary animation isn't always decorative.*
- **Is this animation something an end user would expect?** Don't surprise end users with animations that don't function in a typical way or aren't associated with typical actions.
- **How can I provide this information in an accessible way?** When you decide animation is critical or important and needs to be included in your design, always provide an accessible alternative. You'll learn about providing accessible animation alternatives later in the module.

Reduce interaction-triggered motion effects

When end user behaviors trigger animation that isn't expected, it can cause distraction or nausea. If scrolling a page causes elements in the background to move, an end user can become nauseous. You can prevent these experiences by:

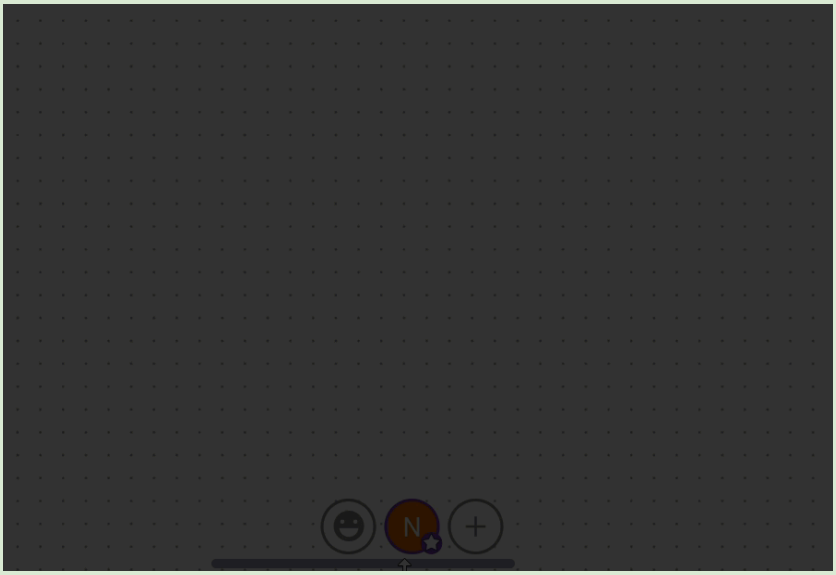
- **Reducing the use and scope of interaction-triggered animation.**
- **Disabling or discarding animation that's not essential to the functionality of your design.**

What's that mean?

Interaction-triggered animation: Motion triggered by end-user behaviors or actions.

- **Example**: In MURAL, you can "react" by clicking the heart, thumbs up, or celebrate icons. These reactions are critical to the collaborative nature of MURAL. When you

reduce interaction-triggered animations, you should still include those that are critical to the product.



Reducing interaction-triggered animation *does not mean* that you should exclude it altogether. Use it sparingly and provide an accessible alternative.

Provide accessible alternatives

Accessibility means providing the end user with diverse options for experiencing content, instead of deciding what works best for them. When it comes to animation, accessible alternatives in MURAL may involve providing controls to pause moving content or including descriptive captions. You learn more about these alternatives in the following sections.

As a designer, it's your responsibility to:

- **Plan ahead to accommodate accessible alternatives.**
- **Define which alternatives you'll need.**
- **Provide alternatives** (a responsibility that may be shared with or completed by the content author).
- **Include an accessible media player.**

Whichever accessible alternative you decide to use, it should:

- **Be reachable by all end users** (e.g., recognizable to a screen reader or other assistive devices).

- **Be descriptive yet concise** (e.g., plainly describe only crucial information, such as labeling controls or describing a GIF).
- **Include methods of control** (e.g., controls to pause, play, or stop moving images or videos).

Include text alternatives whenever possible

Text alternatives for animation include descriptive **captions, alt text** (alternative text), and **labels**.

What's that mean?

Caption: A textual description of images, animations, or other moving content included either immediately before or after the content.

Alternative text: Descriptions of images, animations, or other moving content embedded within the image or animation and recognizable to screen readers.

Label: A form of instruction in the UI that helps the end user identify or understand an element and how to interact with it.

Labels

Labels are typically applied to elements such as menus, tags, buttons, icons, text fields, checkboxes, radio buttons, and dropdown menus. They provide descriptions of inputs and form controls to help end users fill out or submit a form, perform a search, copy a link, enter an email address, and much more.

For example, a loading spinner may include a label that says "loading" or "connecting." Labels are typically short and include as few words as possible.

Resource: Learn more about labels in the **Creating Accessible Labels** module of this training.

Captions and alt text

When more description is needed:

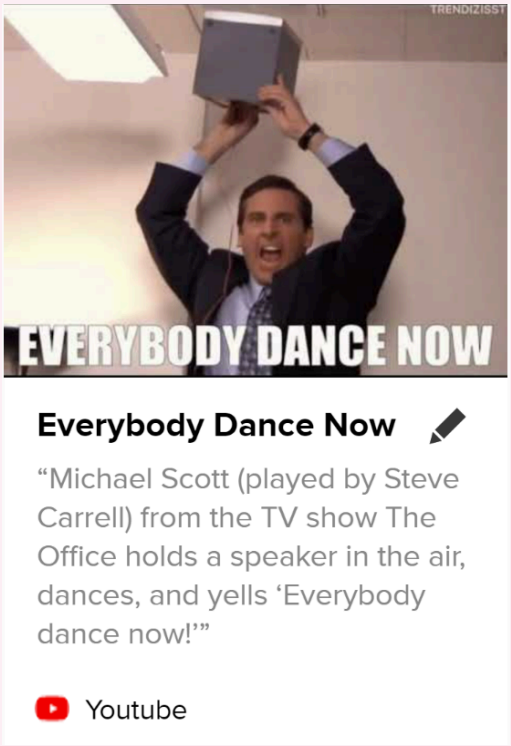
- First, try to include it in the main body of the text (or mural).
- Secondly, use captions or alt text when including the description in the body of the text (or mural) isn't an option.

Captions and alt text should:

- **Include important visual and non-visual information, for example, a carousel region and its different slides.**
- **Include the people, actions, emotions, locations, backgrounds, and movies or TV shows that are relevant to understanding the animation.**
- **Focus on the intent and purpose of the animation.**

Please note that collaborators must use captions as the text alternative in the MURAL app.

Example: In MURAL, collaborators can include a text alternative by adding titles and captions to GIFs and videos. The screenshot below features a GIF as it appears in MURAL. The text alternative includes the title “Everybody Dance Now.” The caption reads “Michael Scott (played by Steve Carrell) from the TV show The Office holds a speaker in the air, dances, and yells ‘Everybody dance now!’”



- **Include any text featured and the source of the text, if known**. In The Office example, we included “Everybody dance now” because this text appears in the GIF.
- **Be short and succinct whenever possible.** For example, if you’re writing a caption about a GIF that features Queen Elizabeth II of England giving a thumbs up, that’s likely all you need to note.

- **Include longer descriptions within the main content of the mural or the body of the main text.**
- **Ensure you use appropriate color contrast when adding text alternatives to animation.**

Give control to the end user

As a designer, it's not enough to provide an accessible alternative to animation. A core accessibility approach is to also allow your audience to have control over any motion on the page. Let the end user enable as many settings as possible to determine what's best for them.

Pause, stop, or hide

UI-based animation functions to enhance the user experience. Examples may include toolbar icons, toggle switches, sliding panels, and other similar animations. Since these animations are usually short and for presentation purposes only, designers don't need to provide methods for control. They can instead rely on the OS and browser settings for reduced-motion options.

However, designers should provide animation controls for any moving content that:

- **Starts automatically.**
- **Lasts more than five seconds.**
- **Is presented simultaneously with additional animation (e.g., multiple GIFs in a mural).**

Within MURAL, this type of content typically extends to videos and GIFs, but can also include components like carousels that have a timer and auto-rotate.

Here are some ways designers can provide end users control over UI animation:

- **Provide buttons or other controls that can pause, stop, or hide moving content**.
- **Provide a method to disable or control content that moves or plays sound automatically.** This applies to carousels, image sliders, background sound, and videos.
- **Provide a method to pause carousel animation on mouse hover or keyboard focus.** This provides more time to read the content and makes it easier to click links in the carousel.
- **Convert GIFs to videos.** If needed, you can access free tools online that will convert your GIF to a video with options to pause or stop it.

Examples: Our previous example showed what The Office GIF looks like captioned in MURAL. We took that same GIF and used a free online tool to convert it to a video. The GIF no longer plays for more than 5 seconds and it includes captions as well as controls to pause or stop it. We now use this accessible version in our article, Best practices for accessible GIFs

in MURAL.

[insert video below, located at https://www.youtube.com/watch?v=nxtnQY9soQM]



- **Identify accessibility considerations for media players, including:**
    - Support for mouse, keyboard, touch, speech, and assistive devices.
    - Clearly labeled, descriptive, and visible controls with sufficient color contrast.
    - Mute and volume controls and controls for video speed.
- **Support the ‘prefers no motion’ setting, which allows users to control animation using an OS setting.** While this is more of a developer task, it’s important to note that this is an option for end users and that designers should create non-motion alternatives to animation.

Best practices, in a nutshell

- **Don’t be flashy!**
- **Avoid unnecessary and unexpected animation.**
- **Provide accessible alternatives.**
- **Give control to the end user.**

Test your knowledge

Choose one or more answers to the following questions.

1. Which type of animation would be unnecessary to include in your design?
    A. Animated data visualization.
    B. Parallax scrolling.
    C. A loading spinner to represent a page loading.
    D. All of the above.

2. In the articles on the MURAL support site, writers often include instructions to explain how to use various features in MURAL. The instructions are often followed by GIFs that visually demonstrate any steps or directions. The GIFs are examples of which type of animation:
    A. Unnecessary.
    B. Critical.
    C. Important.

3. Moving, blinking, or scrolling content that lasts more than 10 seconds requires a mechanism for the end user to pause, stop, or hide it unless the movement is part of an activity where it's essential:
    A. True.
    B. False.

4. The reactions in the MURAL canvas (e.g., the heart, thumbs up, and celebrate) are examples of which type of animation?
    A. Critical.
    B. Decorative.
    C. Unnecessary.
    D. None of the above.