

ANIMATION

Cabri allows movable points to be animated. If you want to animate other types of objects such as images or models, you have to attach them to movable points, or to objects whose motion is controlled by such points.

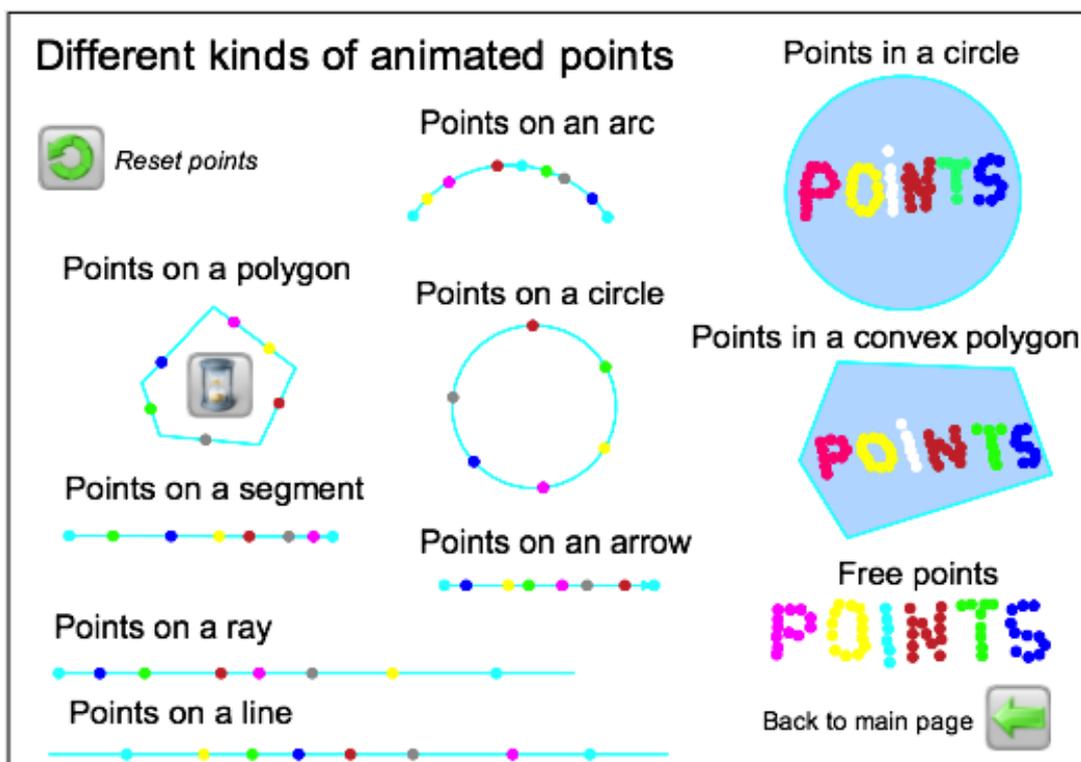
1. BEHAVIOUR OF MOVING POINTS

The behavior of different types of movable point is as follows:

- Points on a segment, arrow, or arc move back and forth.
- Points on a line or ray move back and forth, traveling 50 centimeters out from their original position.
- Points **on** a polygon or a circle move around the polygon perimeter or circle circumference.
- Points **in** a circle or a polygon move randomly inside the containing circle or polygon.
- Free points move randomly on the page.

Note that points, such as intersection points or midpoints, which are completely dependent on other objects cannot be animated.

Open the Cabri Author file **animations** and go to the page “Different kinds of animated points”.



2. STARTING AND STOPPING ANIMATION

In this file, if the **hourglass** icon  at the top right of the window is horizontal, click on it. The icon will switch to a vertical position , indicating that time is flowing and that animation is enabled in the document. To stop all animation, click again on the icon to return it to a horizontal position. Note that in Student mode, animation is automatically enabled, while in Teacher mode animation is disabled.

Animations may also be controlled by actions: when the **hourglass** is vertical, click on the button inside the polygon to stop and start the movement of the points on the polygon. When the **hourglass** is horizontal, this button has no effect.

3. INITIALIZING AN ANIMATION

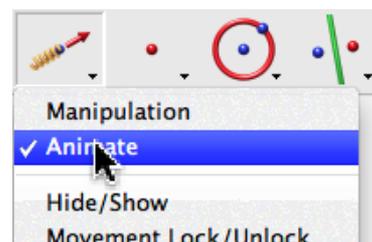
Animation may be initialized in either state of the **hourglass**, using the **Animate** tool or the **Animation** box in the **Attributes** panel of the Inspector.

3.1 Using the **Animate** tool

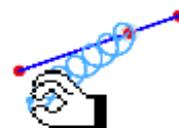
Notes:

- This tool cannot be used to animate free points or points in an object.
- This tool may be made available to students in Student mode.

Select the **Animate** tool.



Click on the point, hold down and drag away from the point. A spring will appear. The longer the spring, the faster the point will move.



Release. The spring will disappear and, if animation is enabled, the point will begin to move.

Repeat this for all points that you want to animate.

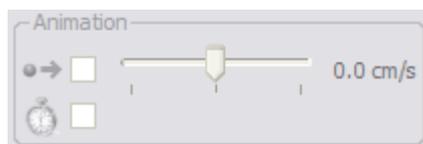
Note: it is not possible to remove animation from a point using this tool, although you may reduce its speed to almost zero. It is better to use the **Attributes** panel of the Inspector to edit animations. For students, you may create an action button to start/stop animation – which will work even if animation has not yet been initiated for the point. See the final activity in this document for details.

3.2 Using the Attributes panel

Select the point and open the **Attr...** (Attributes) panel in the Inspector (click on the blue tab on the right of the page if the Inspector is not visible).



If the point cannot be animated, the **Animation** box will be greyed out.



If the point can be animated, click on the box to the right of the red arrow under **Animation** to enable the point to animate.



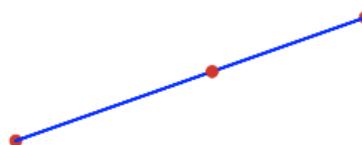
Move the slider to give the point a speed.



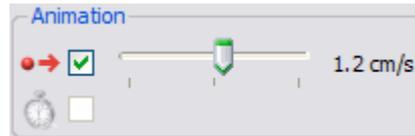
Note: if you have animated a point using the **Animate** tool, you may change its speed and direction by selecting the point and using the Inspector as above.

3.3 How to animate a deer on a segment

Create a segment on the page using the **Segment** tool, and a point on this segment using the **Point** tool.



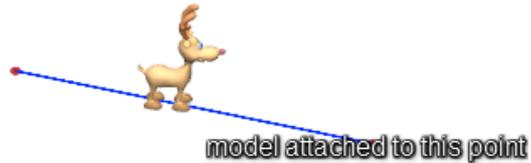
Repeat the steps above to animate and give a speed to this point.



Make sure that the hourglass icon is horizontal, so that the point is not moving.



Select the **Media - Models** panel in the Inspector. Select the “deer” object and then click on the newly created point to attach a deer model to the point.



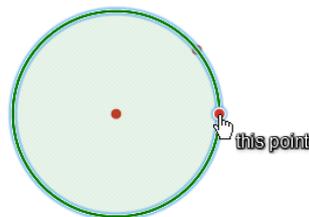
Now click on the hourglass icon, and the deer should travel to and fro on the segment.

Note: you can animate a point after attaching a model to it, but it may be easier to select the point before attaching a model.

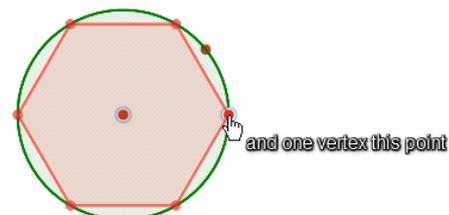
4. HOW TO CREATE A DEER MERRY-GO-ROUND CONTROLLED BY ACTION BUTTONS

See page 3 of the Cabri Author file *animations*.

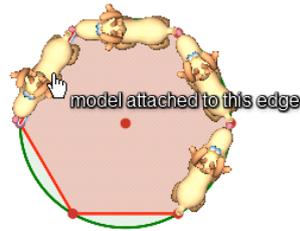
Create a circle with the **Circle** tool and a point on the circle circumference using the **Point** tool.



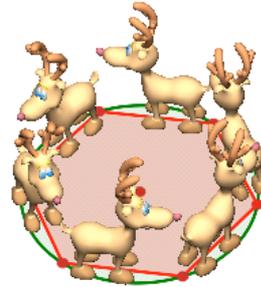
Create a hexagon inside the circle with the **Hexagon** tool, clicking first on the circle centre and then on the point on the circumference (NOT on the point which defines the circle radius).



Select the **Media – Models** panel in the Inspector. Click on the “deer object shown and then click on each side of the hexagon to attach a deer to each side.



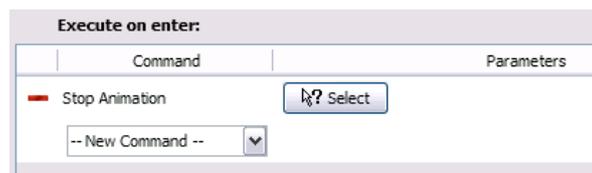
Now animate and set a speed for the point on the circumference and click on the hourglass to start the merry-go-round.



Within Author mode, it's fine to control animations by using the hourglass. However, animations can't be controlled this way in Student mode, as here the hourglass is always active, meaning that all animations are automatically turned on. Unless some actions are added, opening the merry-go-round page in Student mode will start the merry-go-round moving, with no way to stop it.

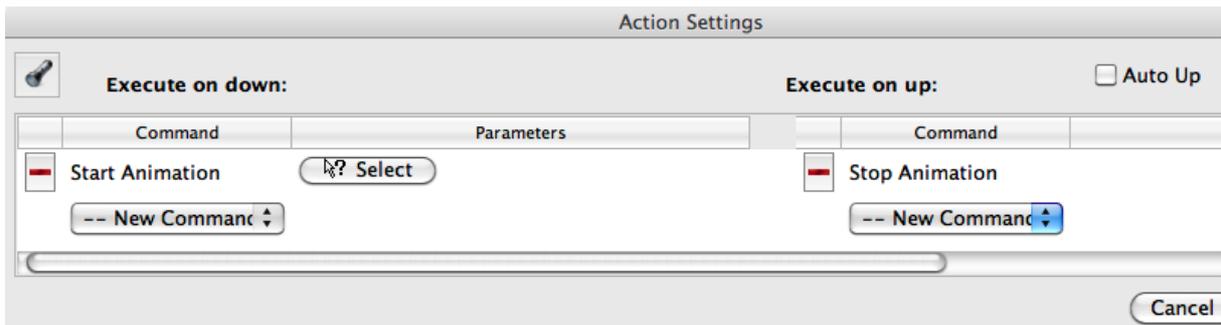
The first step in controlling animation in Student mode is to attach an action to the page that will stop animation when the page is opened. See the **ACTIONS** documentation for further details on what follows.

Choose the action **Stop Animation** in the **Action Settings** dialog box for the page and then select the point on the circle as parameter.



Create a new toggle button, choose the actions below, and then select the point on the circle as parameter.





A button with the hourglass icon
will be created:



Note: it is also possible to create separate push buttons to start and stop animation.

The Cabri Author file ***Animation*** shows a controllable merry-go-round on the page “The deer merry-go-round”.
