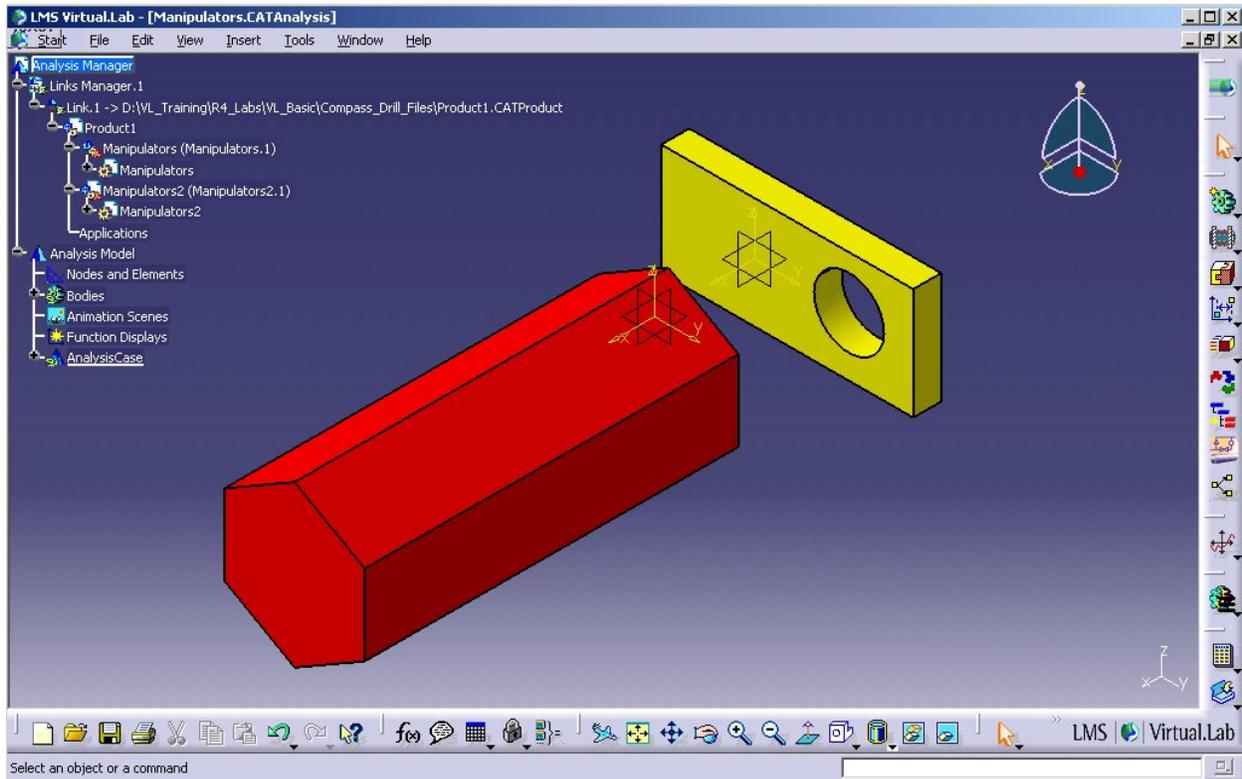


Lab 6: Manipulating Objects Using the Compass

Objective

This lab will focus on the use of the Compass Tool to move Parts within the Product Document. All geometry will be supplied.



Compass Lab Agenda

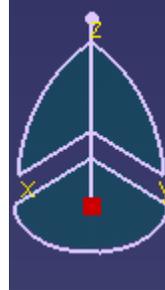
1. Moving the Part Manipulator1 relative to Manipulator2.
2. Resetting the Compass.



Moving the Part Manipulator1 relative to Manipulator2

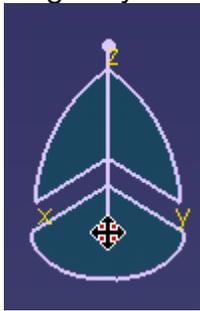
Using the mouse and compass, it is possible to manipulate viewpoints and non-constrained objects recognized by the compass. These objects can be moved or rotated by dragging and dropping the compass onto the object to be manipulated.

1. Open the document Manipulators.CATAnalysis.
2. Switch to the Motion Product Design workbench
3. Point to the compass manipulation handle (the red square located on the privileged plane at the base of the compass).



Originally the Compass appears like this:

The cursor shape changes to:



when it is over the compass manipulation handle.

4. Click and then Drag the compass.

As you drag the compass, the cursor shape changes to: . The compass should now appear like this:



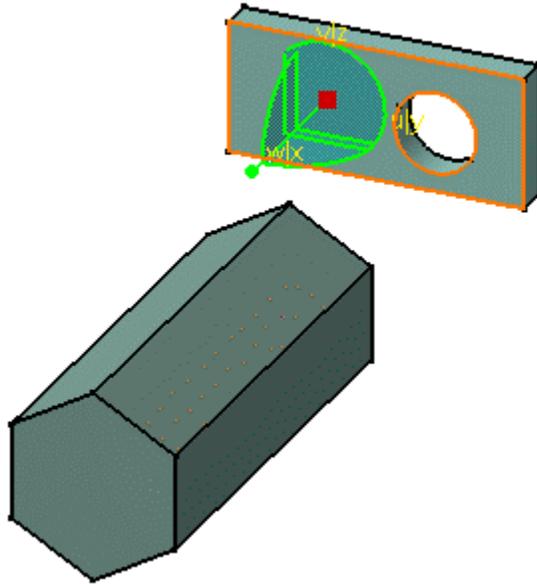
The axis is the Z-axis by default. The square base represents the current privileged plane.

The privileged plane is realigned with one of the planes on the object and is snapped to the object.

5. Release the mouse button to drop the compass onto the object.

Dropping the compass onto the object snaps the compass to the object and selects it. The compass changes color; the default color is light green. The color of the compass can be set using the Handles option in the Visualization tab via the **Tools** → **Options** command.

In this example, drag and drop the compass onto the part. One possible result could look like this:



Note that, in this example, the compass could also be oriented differently, depending on where the compass is dropped.

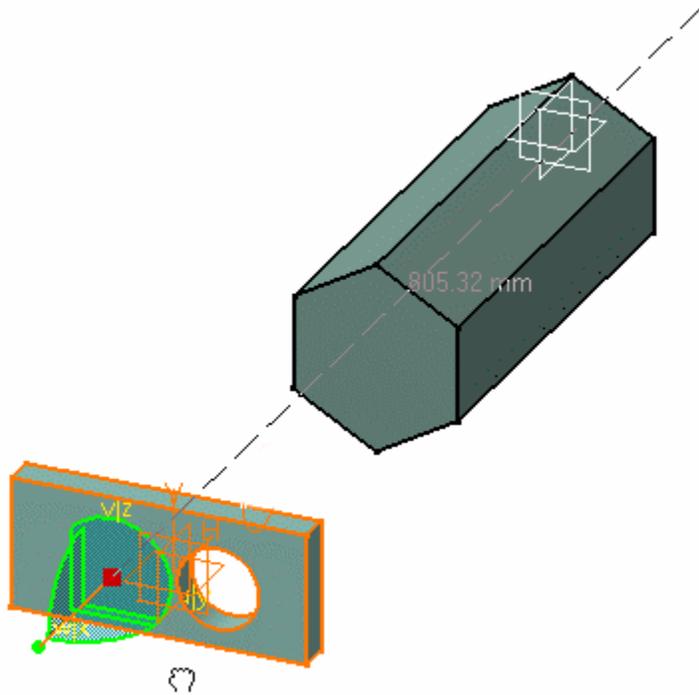
Note that the X axis is now w|x, the Y axis u|y, and the Z axis v|z; an extra letter is added as a way to indicate that the axis in question is no longer oriented the same way as the absolute reference axis in the bottom right corner.

An object can be manipulated once the compass is snapped to the object. This is done by dragging certain parts of the compass. The object (and not the viewpoints) will be manipulated.

6. Drag the X axis of the compass to move the part to the other side of the block, then release the mouse to drop the part in a new position.

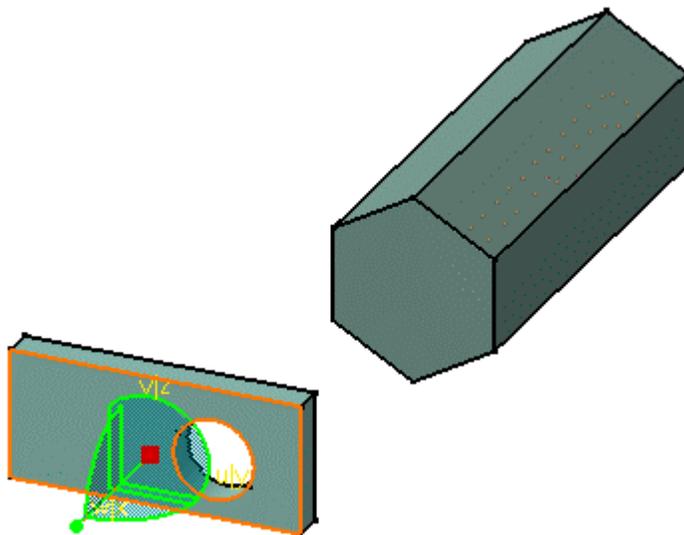
While dragging, the compass and a representation of the part are moved.

The distance from the origin of the axis (the red square or compass manipulation handle located on the compass base) is displayed in real time as you move the object. The value displayed will be preceded by the "-" sign (negative) if you move the object in the direction opposite to the compass orientation.



The translation increments are preset: you cannot reset the translation increments displayed.

When you drop the compass, the pad will now be positioned approximately like this:



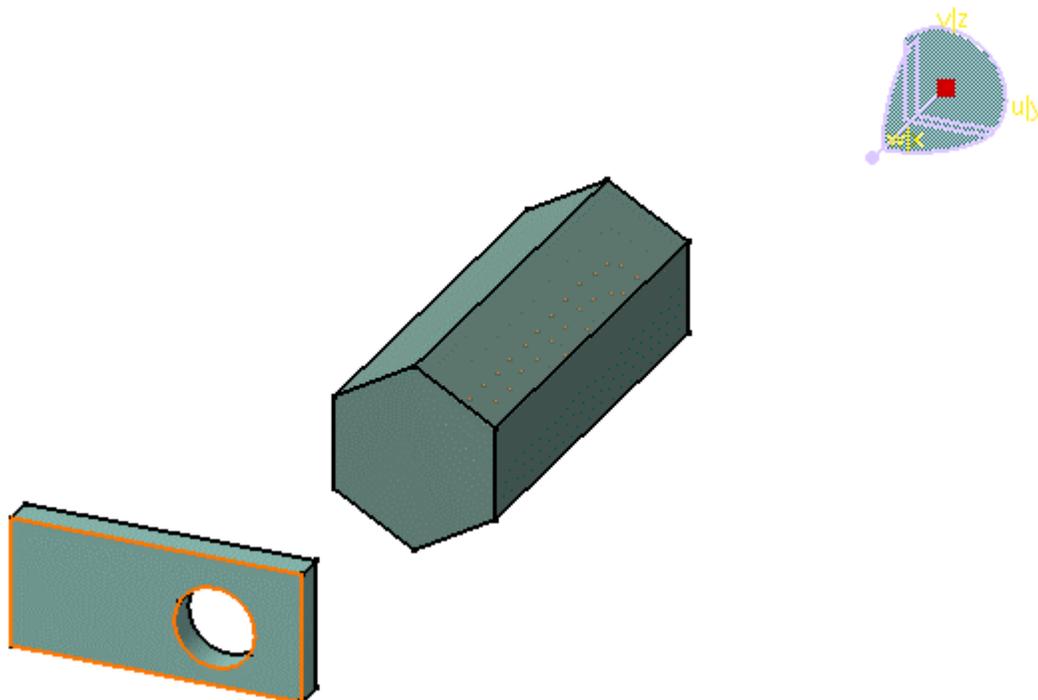
You can also:

- ◆ rotate the object in a plane (by dragging one of the compass arcs): the degree of rotation is also displayed in real time,
- ◆ move the object in a plane (by dragging one of the compass planes): the distance from the origin to the new location (along both axes in the plane) is displayed in real time, or
- ◆ rotate freely about a point on the compass (by dragging the free rotation handle at the top of the compass).

Resetting the Compass

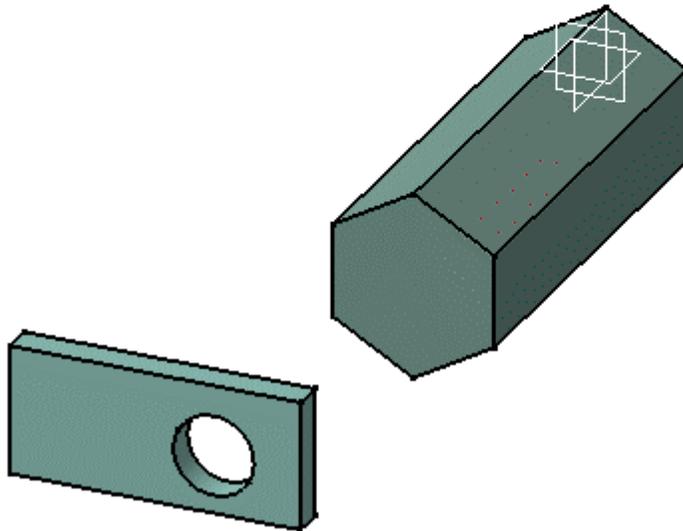
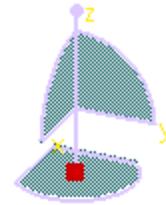
Drag the compass away from the selected object and drop it.

The compass is now disconnected from the object, but maintains its orientation:



To reorient the compass the same way as the absolute reference axis, and restore the compass to its original position in the top right corner of the document, drag and drop the compass onto the absolute reference axis.

The compass is repositioned at the default position and takes the default orientation:



To achieve the same effect, you can also press and hold down the Shift key, then drag and drop the compass. Release the left mouse button before releasing the Shift key.

The **View → Reset Compass** command also restores the compass to its original position, but does not restore the default orientation.

This completes the Lab Session 6.