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1. **HP Sprout: How to Scan**

   i. Log into the HP Sprout All-In-One PC using your University Log-in (Both Students and Staff)
   
   ii. Open the Sprout Workspace Software (it should automatically open once you log in)

2. **2D Scan**

   i. Go to ‘New Capture’ in the second box on the Monitor display with the Sprout Workspace Software on

   Or

   ii. Tap the ‘Capture’ button on the touch mat

   iii. Place one or more objects on the touch mat and then tap the Capture button

   iv. Tap/Click on the Done Capturing button to finish or tap/click on Add New Capture to capture another image.

3. **3D Scan**

   i. Tap on ‘New 3D Captures’ in the 3rd box on the monitor display with the Sprout Workspace Software on

   Or

   ii. Tap the ‘3D Capture’ button on the touch mat

   iii. Select whether you would like a 3D Snapshot (Single Scan) or a 3D Capture (Full Scan)

   a. There are two ways of scanning a 3-dimensional object with 3D Capture on Sprout.

   i. Manual scan: Rotate the object manually.

   ii. Automatic scan: The HP 3D Capture Stage rotates the object.
After scanning, edit the model by using the tools in 3D Viewer.

3D Snapshot (Single Scan)

i. **Before you begin**: Use this information to learn how to capture the best possible 3D scan.
   a. Place your object in the centre of the touch mat.
   b. Sprout scans certain types of objects better than others. Coloured objects with simple shapes, such as a banana or a baseball will capture well. Objects that are shiny, furry, flat, black, or transparent do not capture as well.
   c. Make sure that the room lighting is uniform (no shadows fall on the touch mat) and that the light is not too bright. Sunlight is too bright.
   d. To view a video showing best practices for 3D scanning, tap the **Question mark** icon on the right side of the **Choose capture type** screen. Then tap the 3D Snapshot tutorial video. When you have finished viewing the video, tap the arrow button to close the help screen.

   ![Figure 6: 3D Snapshot Selection in the 3D Capture Menu](image)

   **Figure 6:** 3D Snapshot Selection in the 3D Capture Menu

   ii. Touch the 3D Snapshot option in the selection window that opens.
   iii. Before you can scan an object, be sure to scan the background. Otherwise, Sprout will read the touch mat as being part of the object and will include it in your model.

To scan the background, touch **Scan background** in the lower-left corner of the screen. Then touch **Scan background**.
Make sure there is nothing on the mat during the background scan.

![Figure 7: Scanning the Background](image)

**Figure 7:** Scanning the Background

iv. Place the item for capture on the touch mat using the following guidelines:
   a. Face your object towards the monitor so the camera gets the best capture.
   b. Place the object close to the centre of the mat.
   c. Objects that are transparent or black or shiny, or that have fringes on the edges might not scan well.

You can check the position of your object on the vertical screen.

![Figure 8: Position your Object on the Touch Mat](image)

**Figure 8:** Position your Object on the Touch Mat

v. Tap **Start scan**.

As the item is being scanned, a series of horizontal and vertical black and white lines are flashed on the touch mat and its contents.
vii. Tap the blue arrow to accept the image, the red X to cancel, or the plus sign to save it and scan another object.

viii. Your 3D object is saved to the 3D Models pane in the Sprout Gallery. If you want to edit an existing model, open it from the gallery.

3d Capture (Full Scan): Before You Begin

Use this information to learn how to capture the best possible 3D scan.

i. Sprout scans certain types of objects better than others. Models made from objects that are matte, solid, non-transparent, and not too thin are more successful than models made from shiny, furry, flat, or transparent objects.

ii. Objects larger than 20 x 20 x 20 cm, or weighing more than 1.81 kg cannot be scanned.

iii. Test the position of the object on the stage before beginning an automatic scan. The stage will spin and will likely be tilted. Make sure the object will not wiggle or fall during these movements.

iv. The lighting around your Sprout should be even and direct sunlight should be avoided.

v. Use non-permanent adhesive putty to help position the object during the scan.

vi. To view a video showing best practices for 3D scanning, tap the Question mark icon on the right side of the Choose capture type screen. Then tap the 3D Capture tutorial video. When you have finished viewing the video, tap the arrow button to close the help screen.
3d Capture (Full Scan) Manual Scan

i. Touch the 3D Capture option in the selection window that opens.

Figure 13: 3D Capture Selection in the 3D Capture Menu

ii. Touch the Manual Scan option on the screen.

Figure 14: The Manual Scan Option

iii. Before you can scan an object, be sure to scan the background. Otherwise, Sprout will read the touch mat as being part of the object and will include it in your model.

To scan the background, touch the Scan background button on the screen, and then touch Scan background again.

Make sure there is nothing on the mat during the background scan.

Figure 15: Scanning the Background

iv. After the background scan is complete, Sprout projects a template on the mat and asks you to centre the object on the mat.

Figure 16: Positioning your Object

v. When you have positioned the item on the mat, touch the Start scan button on the screen.

a. Note: From this point on, if you navigate away from the app, your scan will be lost and must be started over.

Figure 17: Starting the Scan

vi. Sprout performs six separate scans to complete one scan cycle. When it is done with the first scan, an image of the model is displayed on the screen.

Rotate the object like hands on a clock to the position indicated on the mat. Be sure not to change the orientation of the object, so that the same side remains facing up throughout each phase of the cycle.

When the object has been rotated to the next position, touch the Start scan button on the screen.
vii. Continue to rotate the object as directed after each phase of the scan cycle. The first scan cycle is complete when the object has been scanned in each position and has made a full rotation around the scanning template.

Touch **Finish cycle.**

viii. Sprout finishes the cycle by merging the scanned surfaces of the six different views. Do not touch or move the object during this process.

ix. After finishing the scan cycle, Sprout displays your model in sculpture mode. You can preview and move your scanned object by dragging, spinning, and pinching.

x. After previewing, choose one of the following options:
   a. **Delete the cycle** - quit the current scan cycle without saving the scans for that cycle.
      i. **Note:** If the object moves at all during the scan, quit the cycle and try again, making sure it is fastened firmly in place.
   b. **Done capturing** - save the results and exit scanning.
   c. **Add another cycle** - scanning a different surface of the object in a new scan cycle will give a more complete picture of the object and will result in a better, more detailed model.
      i. **Note:** HP recommends performing three or more scan cycles for best results.
   xi. To perform another scan cycle, touch **Add another cycle.** Reposition the object so a different surface can be scanned, using repositionable putty if necessary to secure the object. Then touch **Start Scan.**
xii. When Cycle 2 is complete, tap Finish cycle and decide how to proceed; either complete, delete, or add another cycle.

To perform another scan cycle, touch Add another cycle, reposition the object, and touch Start Scan.

Previews of the previous cycles are displayed on the left side of the screen, as well as the live camera feed.

xiii. When you are done scanning, touch Done capturing. Sprout asks if you want to close or preserve the gaps in the model.

To preserve the gaps, touch the Preserve gaps button on the screen. If the object has an opening, a keyhole, or lacy cut-outs, use Preserve gaps to maintain the holes.

To fill the gaps, touch the Close gaps button on the screen. If the object has no natural holes or openings, use Close gaps to smooth the model.

xiv. Touch Continue to Edit to open the 3D Viewer and edit the model.

3d Capture (Full Scan) Automatic

i. Touch the 3D Capture option in the selection window that opens.

ii. Touch the Automatic Scan option on the screen.

iii. Position the stage and connect it to the bottom USB port of Sprout.

iv. Touch Continue to Edit to open the 3D Viewer and edit the model.
iv. Position the cable so that it is parallel with the back of the touch mat, but not resting on it.

v. Touch the **Scan background** button on the screen.

a. **Note**: Make sure the stage and mat are clear during the background scan. Do not move the stage during or after the background scan process.

vi. When the background scan is complete, place the object securely on the stage.

a. **Note**: From this point on, if you navigate away from the app, your scan will be lost and must be started over.

vii. In the lower-right, choose the stage position, either **Tilted** or **Flat**.

a. **Note**: If you select Tilted, Sprout automatically tilts the stage during the scanning process.

viii. To check whether the object is securely fastened to the stage, touch **Test Stage Rotation**. If the object moves during the rotation, secure it with adhesive putty and test again.

ix. To begin the first scan cycle, touch the **Start scan** button in the lower-right corner of the screen.

x. Sprout performs six separate scans to complete one scan cycle. During this process, the stage automatically rotates until it has completed the six scans in the cycle.
xi. Sprout finishes the cycle by merging all of the scans and displays your model in sculpture mode.

Do not touch or move the object or stage during this process.

You can view your scanned object by dragging, spinning, and pinching.

xii. After previewing, choose one of the following options:

a. **Delete the cycle** - quit the current scan cycle without saving the scans for that cycle.
   i. **Note**: If the object moves at all during the scan, quit the cycle and try again, making sure it is fastened firmly in place.

b. **Repeat the current cycle** - use this to improve the quality of the scans in the current cycle.

c. **Done capturing** - save the results and exit scanning.

d. **Add another cycle** - scanning a different surface of the object in a new scan cycle will give a more complete picture of the object and will result in a better, more detailed model.
   i. **Note**: HP recommends performing three or more scan cycles for best results.

xiii. To perform another scan cycle, reposition the object on the stage so a different surface can be scanned and then test the stage rotation to make sure the object is fastened securely.

Then touch **Start Scan**.

xiv. When Cycle 2 is complete, preview the scans and decide how to proceed; either complete, delete, repeat, or add a cycle.

To add a third cycle to scan a different surface, reposition the object, test the stage rotation, and touch **Start Scan**.

Previews of the previous cycles are displayed on the left side of the screen, as well as the live camera feed.

xv. When Cycle 3 is complete, tap Done capturing. Sprout fuses the scan cycles and displays your model on the screen.

xvi. Sprout notifies you that you can preserve gaps that appear in the model or close them.

To preserve the gaps, tap the Preserve gaps button on the screen. If the object has an opening, a keyhole, or lacy cut-outs, use Preserve gaps to maintain the holes.

To close the gaps, tap the Close gaps button on the screen. If the object has no natural holes or openings, use Close gaps to smooth the model.
xvii. When done, touch Continue to Edit.

3D Viewer opens your model for editing.

2. **HP Sprout: Resizing and Moving the Scanned Object**

i. The scanned object can be resized, moved around on the mat, and rotated by pinching, and touching and dragging it on the touch mat.

![Figure 38: Pinching to resize the image](image)

3. **HP Sprout: Features**

After 3D scanning, on the left side of the touch mat is a menu of icons to perform different functions.

The following list shows each of the icons and describes its function:

i. To **add texture to your model**, touch the **Texture button**. The Texture menu opens. Touch one of the texture selections. The choices include cement, wood, straw, shiny metallic, and others. The texture is applied to your entire model. You cannot add texture to selected parts.

You can also remove all the texture, and revert to the original texture.

![Figure 41: No Texture (1) and Original Texture (2) Buttons](image)

ii. To **change or highlight the colour**, touch the **colour button** and the desired colour. The colour of the image changes. The colour is applied to your entire model, tinting parts that are already coloured and painting white parts. You cannot select areas of the model to paint.

iii. To **save the image to the 2D image gallery**, tap the **2D icon**. The image is saved in the image library in the gallery.

iv. To **remove noise**, the extra unwanted artefacts in the scan that do not belong to the object, use the **Remove Noise tool**. All objects on the screen change to red.

Tap the objects or parts of the object on the screen you want to keep, changing them from red to blue.

The red parts will be deleted and the blue parts will be saved. When done, tap the blue check at the bottom of the screen to save your changes.
v. To get the object back to its original location on the screen and or the touch mat, tap the x-y-z icon. The object returns to its original place.