

## Instructions for Making Tracings from the KNS Cineradiograph

Switch the projector to Video and find the numbers of the frames of interest on the VCR.

Switch the projector to Computer, and open Word on the laptop.

Open the file called `Blank_landscape.doc`

Insert a frame of interest:

Insert, Picture, From File...

Insert the file `KNS6400X.gif`, where  $X = \text{the frame number} + 35$

Right click on the picture; choose Format Picture; set the Width to 9.5"

Save the file in your group's folder as `FrameX.doc`

Left click anywhere in the picture to select it.

In the Draw toolbar, choose Draw, Grid, and change the Horizontal and Vertical spacings to .01.

Use the text tool to create a label containing the frame number and any other information you'd like to include.

Decide which groups of structures you will trace as single objects. Suggestions (not mandatory):

The upper lip, incisors and hard and soft palates

The lower lip (starting at the lower incisors) and outside contour of the lower face

The rear wall of the pharynx, including the outline of the peri-arytenoid tissue, down to the rear of the laryngeal vestibule

The tongue contour, beginning at the lower incisors and going all the way down to the bottom of the vallecula

The epiglottis, and anterior wall of the entrance to the larynx, starting in the vallecula and going down to the front of the laryngeal vestibule

The laryngeal vestibule

The outline of the mandible, starting with the lower incisors at the tongue tip

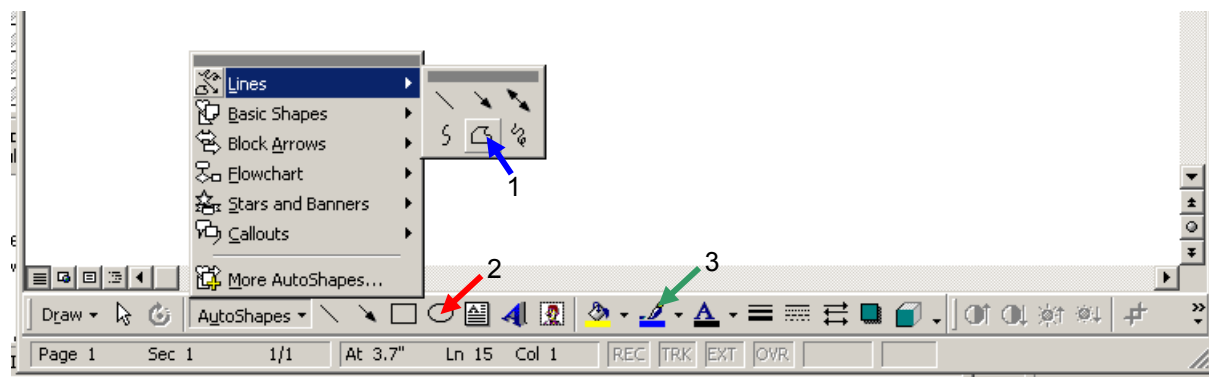
The hyoid bone

The external markers on the chin

Several of the small round markers placed 1 cm apart on the upper right of the image intensifier surface

The coin

All these contours except the small round markers are best drawn with the Freeform tool. This tool enables one to trace contours as a series of straight lines, each delimited by two mouse clicks.



From the Draw toolbar at the bottom of the window, choose Autoshapes, Lines, Freeform (1)

1. Place the pointer at the beginning of the contour and left click once.
2. Drag the pointer along the contour until it begins to curve so much that another straight line segment is needed and left click again.
3. Repeat the previous step until you reach the end of the contour.
4. While holding the pointer in place, press Esc, to initially complete the contour.
5. When the contour is initially completed, select it and change its color to gray 40% with the line color tool (3).
6. If you want to adjust the contour, select it and use the Draw, Edit Points tool. It is possible to move each point separately until the contour looks good to you.
7. After finishing with the first contour Save the file as `FrameX_tr.doc`.

Repeat the above process for each contour, saving the file after completing each one.

To trace the small round markers, use the oval tool (2). Place the cross hairs at the upper left of the marker and draw it down to the lower right. If the oval ends up in the wrong place you can select it and move it with the crossed arrows.

Once all the contours are traced, group them together and change them all to black:

While holding down the Shift key, click on each contour to select it. When all the contours are selected, change them all to black simultaneously using the Line color tool (3).

Then, use Draw, Group to group them together as one object.

While the grouped tracing object is still selected, copy it to the clipboard (Edit, Copy).

Again, Open the file called `Blank_landscape.doc` and save it as `TracingX.doc`. Paste (Edit, Paste) the tracing from the clipboard and save it again. Print as many copies as you need.

### **Comparing tracings with one another by overlaying them.**

Create a new document by opening `Blank_landscape.doc` and saving it in your group's folder with a new name, e.g., `Overlay.doc`.

For each tracing of interest:

- Open the tracing.
- Ungroup the tracing object using Draw, Ungroup.
- While all the objects are still selected, give the lines a frame-specific texture (dotted, dashed, etc.) using the line texture tool in the Draw toolbar
- Regroup the objects with Draw, Regroup
- Copy the tracing to the clipboard
- Paste the tracing into `Overlay.doc` and Save it.

Overlay as many tracings as you need and Print the results.