

THM Content Design Document

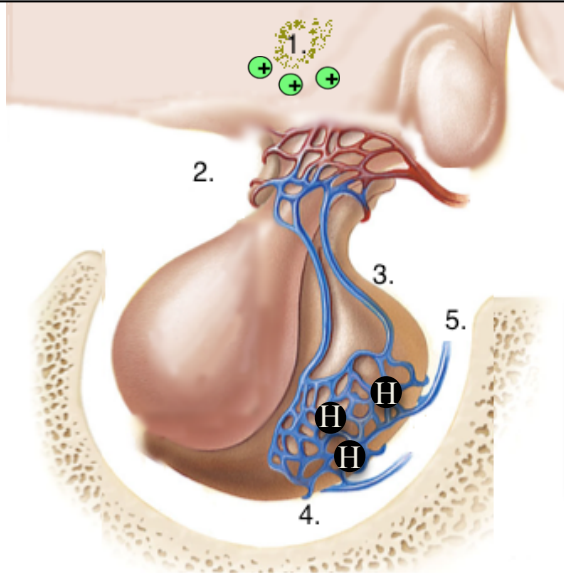
Title: Pituitary Adenoma	
Course: Anatomy of the Human Body	
Due date:	
Instructions Text: The example of the pituitary adenoma is used to demonstrate the pituitary's functioning.	
Learning outcomes: - Understand the structure and function of the hypophyseal portal system	
-See how a pituitary adenoma affects hormone release and damages nearby structures	
Explore mode: Yes. See below.	
Special Considerations: http://www.youtube.com/watch?v=Vae5CcaPN_8&feature=related	
Create your own graph. Do not use the pictures in this document.	
Professor sign-off:	Date:

Question EXPLORE MODE

Progress Bar

Title text block

Click on the glowing numbers in sequence to produce engage the hypothalamus and see the action that ensues throughout the hypophyseal portal system. Follow along with the text box. Press "Ready" to move on.



Control Panel

Ready

TEXT BOX

Description: An image of the hypothalamus and pituitary gland is shown, and labelled. The different parts have numbers associated with them. Please draw your own pictures, as these ones are copyrighted.

For this entire part, Textbox info is presented, and the student clicks on a glowing Number. The number that will glow is in the order seen above. After the student clicks upon each number, a text box reads a passage. The content of each passage is listed below.

When the student clicks on the glowing spot, an animation occurs and the textbox changes. After the animation, then next number glows and waits to be clicked.

TEXT BOX ENTRIES AND ANIMATION DESCRIPTIONS:

Text box is initially blank.

1. Student clicks 1 – Text box reads “The hypothalamus produces releasing factors”.
Animation: 3 Small green balls with plus signs fade in around the 1.
2. Student clicks 2 – Text box reads “The factors enter the hypophyseal portal arteries.” Animation; Small green balls enter the *red* mass of arteries on the top.
3. Student clicks 3 – Text box reads “The factors travel directly to the hypophyseal portal veins of the anterior pituitary gland.” Animation – the green balls travel down the long blue lines to the mass of blue veins at the bottom.
4. Student clicks 4 – Text box reads “The releasing factors stimulate the anterior pituitary to release hormones.” Animation – the green balls disappear, and small black balls with white H’s on them fade in, all over the blue vein mass.

- 5. Student clicks 5 – Text box reads “The hormones are released to the body.”
Animation – the black H’s leave through the 2 blue veins on the right side of the structure, and fade out after they leave.**

When the student clicks ready, they move onto the first question.

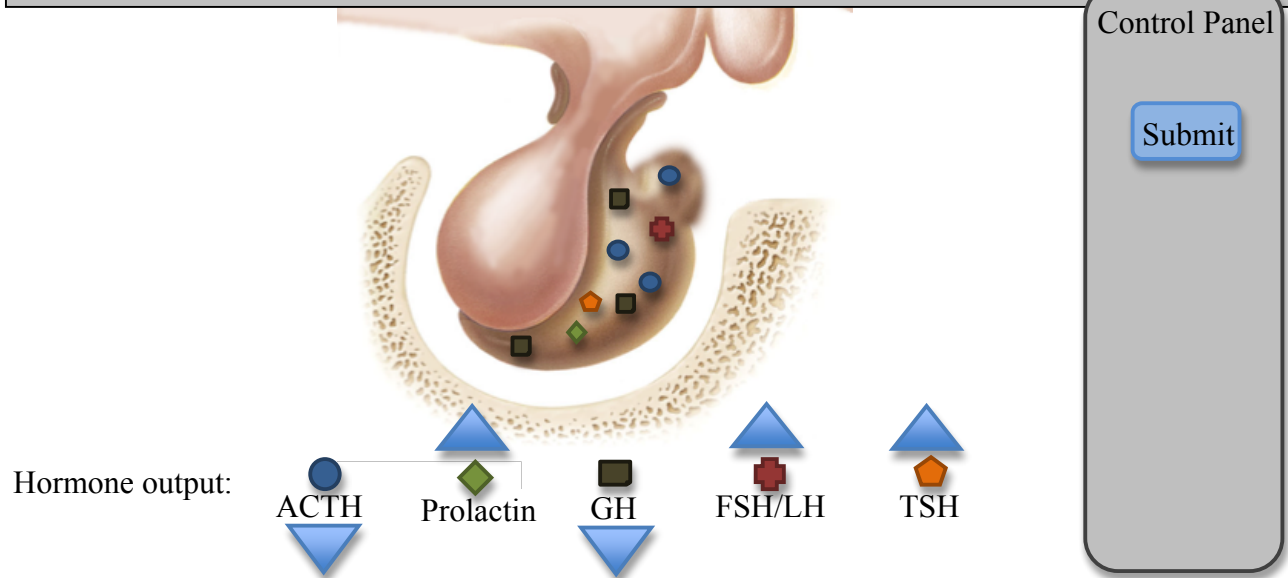
After clicking on 5., number 1. glows again and they can restart the explore mode.

Question # 1 out of 2

Progress Bar

Title text block

A pituitary adenoma will increased hormone production, depending on which type of cell experiences increased growth. By clicking on the arrow buttons, show how the hormone output would look if the ACTH & GH producing cells replicated uncontrollably, then submit



Description: A simplified drawing of the pituitary gland is shown, with a bump on the top right. There are 5 types of hormone markers. At the beginning, there is one of each marker on the gland.

Each hormone marker type is labelled in a line along the bottom. *Each one starts with an arrow button above it, pointing up.*

When the student clicks on an arrow button pointing up, 2 more of that type of hormone marker fade in to appear, and the arrow button instantly appears below the label, and points down.

In the picture above, you can see that the student has clicked on the ACTH and GH buttons, as there are 3x as many ACTH, 3x as many GH, and the arrows for these two have been switched. This image shown above is the only correct answer. If the student presses submit, they are correct if ACTH and GH have been increased, and the other three have not.

If the student presses the Down button after pressing the Up button, that marker goes back to normal, showing only 1 hormone marker on the picture and the arrow points back up.

Correct answer Animation: Textbox appears and says "Correct."

Incorrect answer Animation: none.

Incorrect submission hints: The incorrect arrows and markers glow red, the correct arrows and markers glow green.

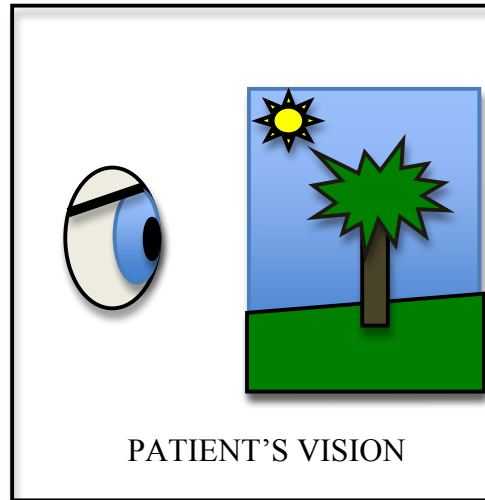
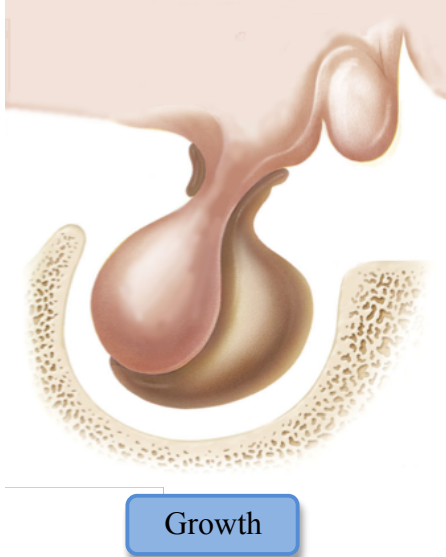
“Show Answer” animation: The arrows set to the correct positions, and the markers change so that they match the picture above.

Question # 2 out of 2

Progress Bar

Title text block

Pituitary adenoma can also cause mass effects, where the tumour grows too large for the pituitary's confines, and begins to press against the ventral surface of the brain. Click on the Growth button to see this process occur, then submit.



Control Panel

Submit

Description: It starts with a normal structure, as seen on the screen above, on the left. On the right is a static image, where an Eye is looking a photograph of a scene.

When the student presses the Growth button, the brown part of the structure in the back grows out. At the end, it looks like the image in APPENDIX 1. When it gets to the top, the rounded shape on the top surface should look like it is being pressed against the ceiling. The rounded shape has an arrow pointing to it in APPENDIX 1.

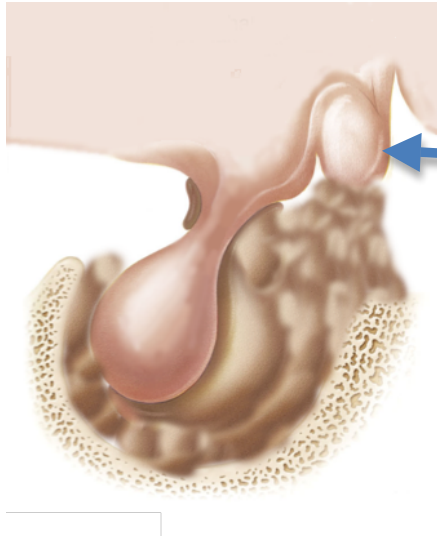
The growth process takes about 8 seconds, and should have at least 2 intermediate pictures, where it can fade from one level of growth to the next.

After growth is complete, the photograph of the scene that the eye is looking at should go blurry. Very blurry. A textbox appears that reads "As the tumour presses against the optic chiasm, the patient may experience vision problems."

The student can now press submit anytime.

"Show Answer" animation: Growth occurs again from the beginning. The scene turns blurry when the growth pushes the optic chiasm rounded shape.

Appendix # 1



Rounded piece (called optic chiasma) should be pressed up against the ceiling

Description: After Growth pituitary tumour from question 2. The arrow and description should not be drawn on the student's screen – it is just for your aid.

Quality Checklist:

OS and Browser Compatibility:

OS System	Firefox	Chrome	Safari
Windows			
Mac OSX			
Linux (Ubuntu)			N/A

NOTE: All demos must display each question properly for each OS/Browser combination.

Server Compatibility:

Description:	Checklist
SWF can run as a standalone file off the server with no errors.	
While in offline mode the submit button uses server simulation	
While on the server the SWF can and transmit and receive data	

Demo Controls:

Description:	Checklist
User can traverse back and forward through questions without glitches	
User can reset at any time and question state will revert back to beginning state	
No cases of wrong answers marked as right	
No cases of right answers marked as wrong	
When the user presses the answer button the answer animation plays	
While an answer animation is playing the curtain is visible	
(Microstep) User can traverse back and forward through microsteps without glitches	
(Microstep) Reset sets the microstep back to 1 and reverts back to beginning state	
(Explore mode) The user can return to explore mode at any time	
(Explore mode) The user can return back to the last question from explore mode	

Miscellaneous Checks

Description:	Checklist
All interaction objects have the mouse cursor change to a hand while over object	
All fonts are Times New Roman, Helvetica or Futura	
Instructions text is appropriate and written .	
Demo title is appropriate and written .	