

Ear Anatomy Bingo

Background information:

This activity is designed as a follow-up to study you've already done about the ear. If you want a very quick summary of the information needed, check out these short video clips on YouTube:

- "Process of Hearing Animation" posted by psy113
- "How the Ear Works" posted by Javitzproductions

You will need:

- copies of the pattern pages, one sheet per two players
- scissors and a glue stick
- tokens to put on the squares (anything will do: coins, candies, raisins, paper squares)

How to prepare:

Give each player a half sheet (top or bottom of the pattern page). The colored squares should be cut apart, then glued onto the blank squares in a random pattern. No two boards should be the same. You will notice that there are more colored squares than blank squares. This is intentional. Players will have to choose which 9 of the squares they want to use and leave 2 off. This is an additional guarantee that no two boards will be the same.

QUIZ square: Players can choose whether to include this one or not. When QUIZ comes up, players will be asked a question and have to choose an answer. If they get it right they can put a token on the QUIZ square.

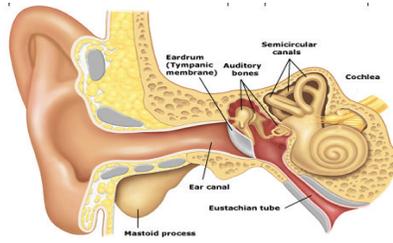
How to play:

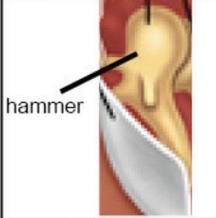
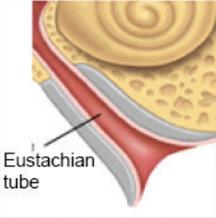
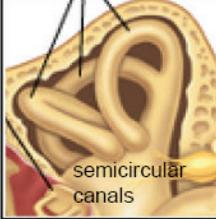
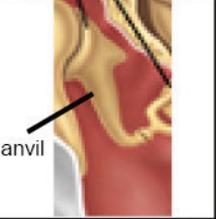
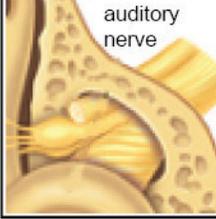
Play like standard Bingo, but with the addition of occasional quiz questions. The clues are given in a chart form so that the adult in charge can choose clues that are most appropriate for their players. You can choose to repeat clues, or not. You can also choose to use the clues that have more than one answer if this seems advisable in your situation. Place a token on each clue as you use it so that you can check the winner's answers when someone gets a Bingo. (You can also cross them off with a pencil, but then it becomes confusing if you want to reuse them. However, if you don't want to reuse clues, you could cross them out.)

If you want a non-competitive alternative to declaring winners, use edible tokens and anyone who gets a Bingo can eat those winning tokens before they start another game. Chances are that all players will eventually get at least one Bingo. In any case, leftover tokens at the end can be eaten by everyone!

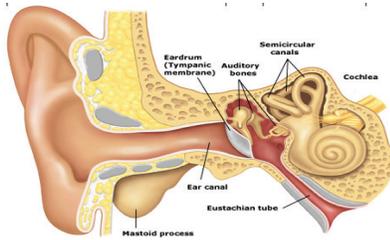


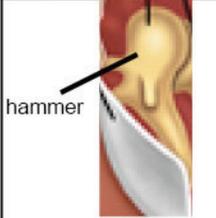
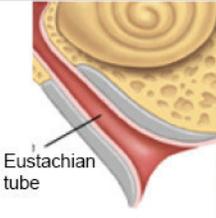
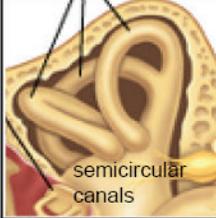
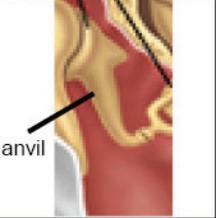
EAR ANATOMY BINGO



 outer ear	 eardrum	 ear canal
 hammer	 Eustachian tube	 cochlea
 semicircular canals	 stirrup	 anvil
 auditory nerve	QUIZ	

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For each game, choose ONE clue in each ROW. Put a token on it so you can keep track of which clues you have used. Also, include a quiz question of your choice. For the next game, you can choose to repeat clues if you want to review, or you can choose all new clues.

outer ear	Scientists call this the pinna.	The function of this part is to bring sound waves into the ear.	This part is a bit like a funnel.	This part can be "attached" or "unattached."	This part has a flap called the tragus.
ear canal	This part is lined with glands that make wax.	This is where water collects when you swim.	Sometimes this part becomes clogged with ear wax.	This part can also be called the auditory canal.	
eardrum	This part divides the outer ear from the middle ear.	This part is about half a millimeter thick.	Besides the ear canal, this is the only part that a doctor can clearly see with an otoscope.	This part vibrates when sound waves hit it.	Doctors sometimes insert a tube into this part to help patients who have had constant ear infections.
hammer	The correct name for this part is the malleus.	This part attaches to the back of the ear drum.	This bone has a head and a handle.	This part acts like a first class lever (with a fulcrum in the middle).	
anvil	The correct name for this part is the incus.	This part connects a bone to a bone.	This part touches the hammer but not the ear canal.	This part is named after a tool used in metal working.	
stirrup	The correct name for this part is the stapes. (<i>stay-pee-z</i>)	This is the smallest bone in the body.	This part connects to the oval window on the cochlea.	This part touches the cochlea but not is not a nerve or a canal.	
cochlea	This is where sound is changed from vibrations to electrical signals.	The name of this part is Greek for "snail shell."	This is where you will find cells with tiny hairs that move when they sense a particular frequency.	This part has an "oval window."	This part contains the organ of Corti.
semicircular canals	This part works with your brain to give you your sense of balance.	This part is filled with fluid that sloshes around when your head is tipped.	This part is actually made of three parts, all of which look very similar.	When the fluid in these parts keeps on moving after you stop, you feel dizzy.	Motion sickness is when what this part is feeling doesn't match what your eyes are seeing.
Eustachian tube	This connects the middle ear to the back of the throat.	When this part suddenly opens, you feel your ears "pop."	This part is named after an Italian doctor from the 16th century.	This part brings air into the middle ear.	
auditory nerve	This takes electrical information to the brain.	This is part of both the nervous system and the inner ear.	This part attaches to the organ of Corti where it is "tickled" by tiny hairs.	This part is made of 30,000 nerve fibers.	
more than one answer	A part that is filled with, or is surrounded by, air. (outer ear, ear canal, hammer, anvil, stirrup, Eustachian tube)	A part that is filled with fluid. (cochlea, semicircular canals)	The Latin name means the same thing as the English name. (malleus, incus, stapes, tympanum)	A part that is made of bone. (hammer, anvil, stirrup)	A part that has vibrations going through it. (canal, eardrum, hammer, anvil, stirrup, cochlea)

QUIZ QUESTIONS: (*Players hold up number of fingers to match their answer, so they can't change their answer.*)

- Which one of these does NOT have ears? 1) turtles 2) fish 3) frogs (*fish*)
- True or False? Your ears stop working while you are asleep. 1) True 2) False (*False. Your brain just ignores the sounds.*)
- Many animals can hear higher sounds than people can. Which animal holds the record for being able to hear the highest sounds? 1) dolphin 2) dog 3) mouse (*dolphin*)
- Noise is measured in units called decibels on a scale of 0 to 200. Normal conversation is about 60 decibels, city traffic is 80-85, lawn mowers are about 100, a loud rock concert is about 110, a jack hammer is about 120 and a jet engine is about 150. The amount of time you are exposed is also very important. After one minute of exposure to this level, you begin to get some hearing damage: 1) 80 2) 100 3) 140 (*100*)
- Some animals can hear very low sounds, much lower than we humans can hear. Which animals do you think can hear the lowest sounds? 1) horse 2) giraffe 3) elephant (*elephant*)
- Animal ears can have other functions, besides hearing. Two of these are common animal ear function and one is not. Can you figure out which one is not? 1) Heating 2) Cooling 3) Communication (*heating*)