

RULES FOR THE END OF THE GAME

Once the last card is drawn from the pile the game is nearly over, and some new rules come into effect.

Asking for system cards

When you ask someone for any card in a system they must give you up to 3 cards from that system (if they have them).

Example

Alice, do you have any Respiratory System cards?

- If Alice has any Respiratory System cards she must give you up to three of them. If she has more than three, she decides which cards to give you.

Running out of cards

When you have no cards left in your hand, the game is over for you.

Ending the game

The game is over when no one has any cards left.

WINNING THE GAME

Once the game is over, add up your score.

- Every card is worth one point.
- Every complete system is worth one point.

The player with the highest score is the winner.

CREDITS

Dissect Yourself! was designed by Robert Prior.

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More science resources can be found at

<http://science.robertprior.ca>



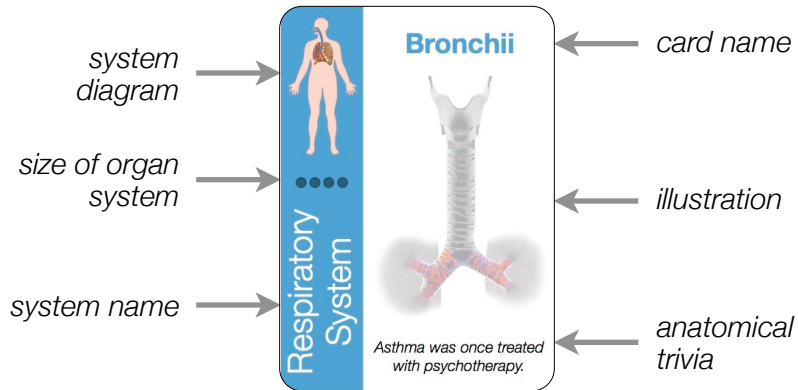
DISSECT YOURSELF!



DEDICATION

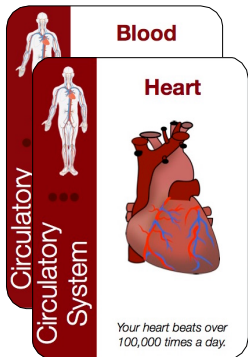
*These game rules are based on **Go Extinct!** designed by Ariel Marcy and published by STEAM Galaxy Studios. **Go Extinct!** is an award-winning game teaching humans as young as 8 how to read evolutionary trees. Learn more about **Go Extinct!** at www.steamgalaxy.com; educators can print a free version at www.steamgalaxy.com/for-educators/*

ANATOMY OF A CARD

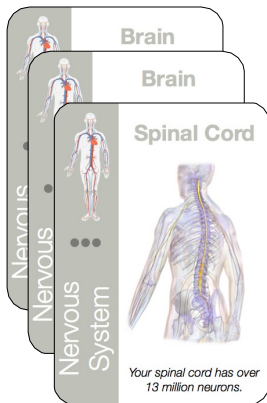


YOUR GOAL

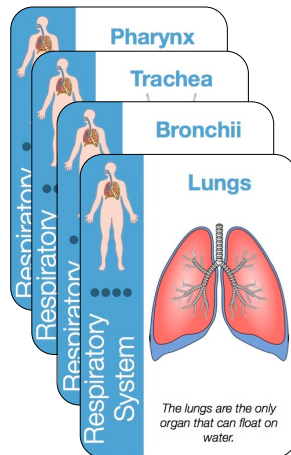
Every player is trying to collect as many *complete organ systems* as possible. The coloured dots below the system diagram indicate how many *different* cards make up a complete system.



Incomplete System
Not enough cards.



Incomplete System
Correct number of cards, but one is a duplicate.



Complete System
Correct number of different cards.

BEGINNING THE GAME

Shuffle the deck and deal every player 6 cards. Place the remaining cards in a pile between all the players.

The person to the left of the dealer starts the game.

PLAYING THE GAME

Your turn has 3 steps. After you have finished all 3 steps play passes to the person to your left.

Step 1: Ask for a card

You must ask a *specific person* for a card, not the entire group.

You can ask them for either a specific card or any card in a specific system.

Examples

Bill, do you have a Heart?

- If Bill has any Heart cards he must give it to you one.

Alice, do you have any Respiratory System cards?

- If Alice has any Respiratory System cards she must give you one of them. She decides which card to give you.

The Ask Again Rule

If you asked for and received a *specific card*, you may ask again. You can ask a different player or the same player. If you asked for a card from a system, you may not ask again.

Step 2: Play complete systems

If you have any complete organ systems, play them face-up in front of you. Once an organ system is in front of you the cards cannot be taken by other players.

Step 3: Refill your hand

If you have less than 6 cards in your hand, draw fresh cards until you have 6 cards.

Once you have finished refilling your hand your turn is over.

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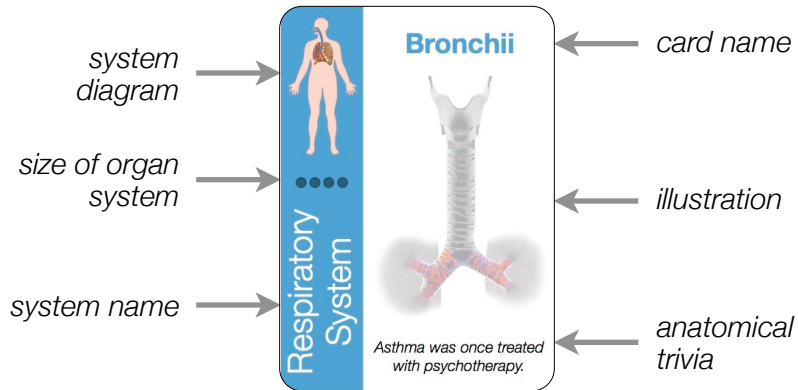
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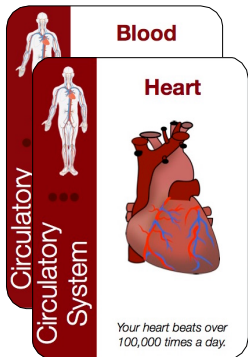
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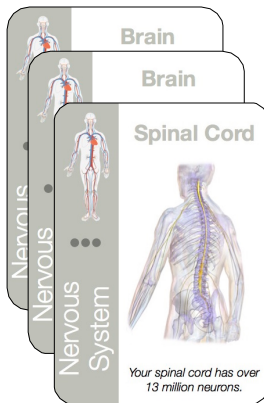


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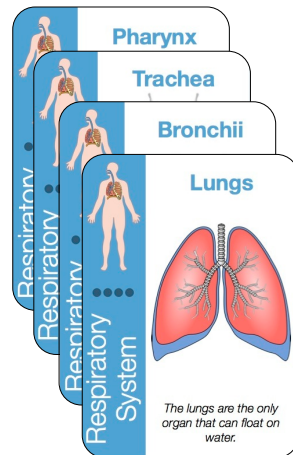
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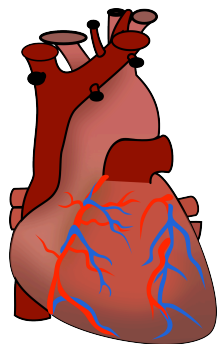

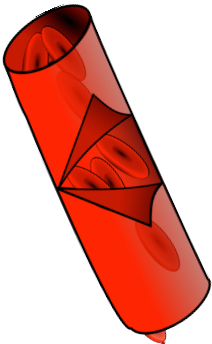

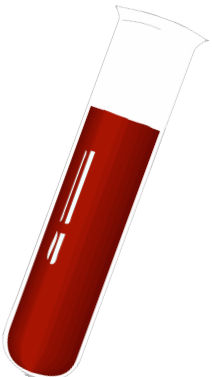



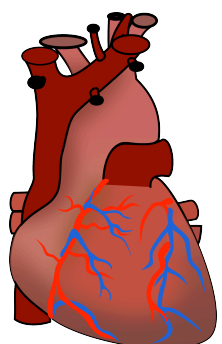

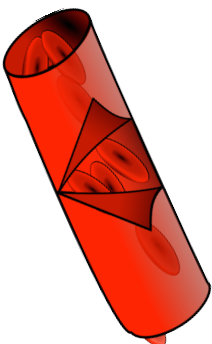




Step 2: Play complete systems


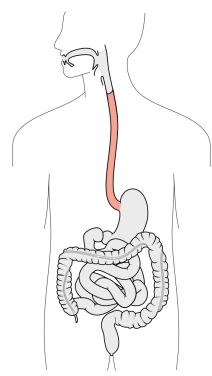

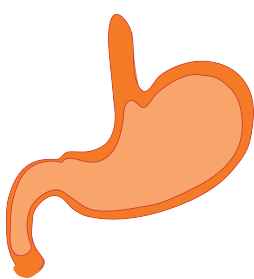

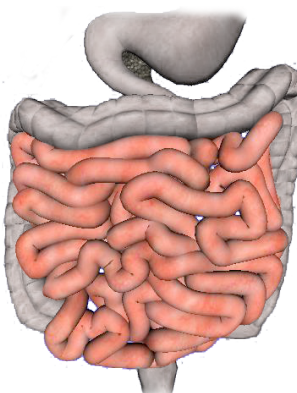

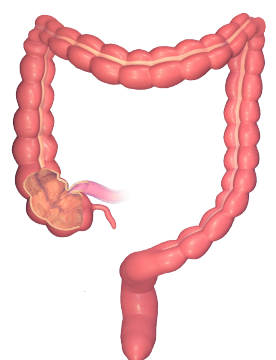

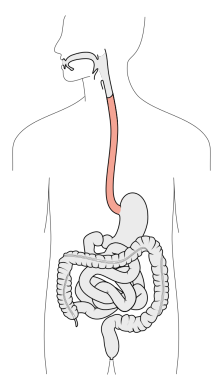

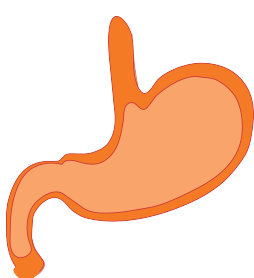

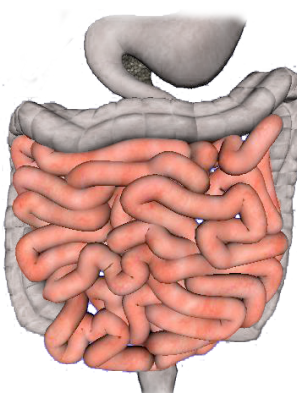

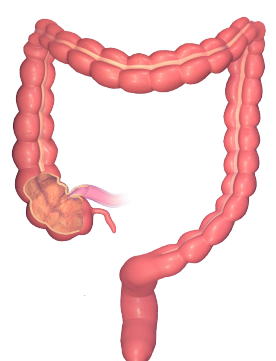
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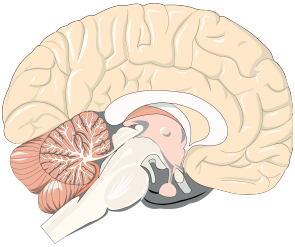

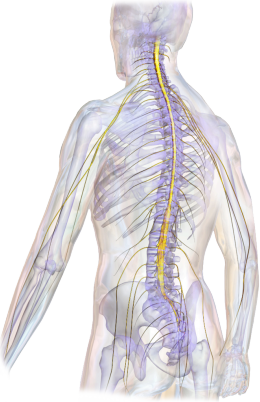

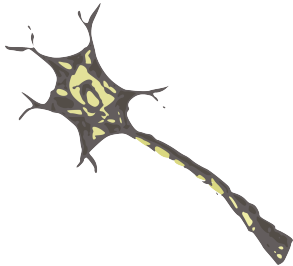



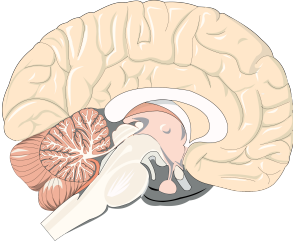

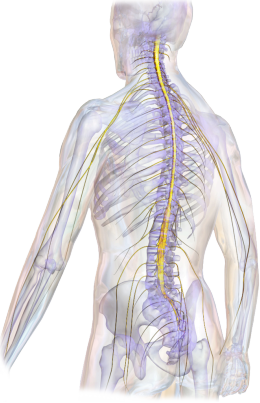

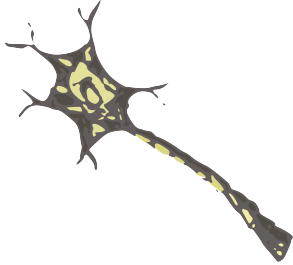


Step 3: Refill your hand

If you have less than 6 cards in your hand, draw fresh cards until you have 6 cards.

Once you have finished refilling your hand your turn is over.

 <p>Circulatory System</p>	<h2>Heart</h2>  <p><i>Your heart beats over 100,000 times a day.</i></p>	 <p>Circulatory System</p>	<h2>Blood Vessels</h2>  <p><i>Laid end-to-end your blood vessels would wrap around the world twice.</i></p>	 <p>Circulatory System</p>	<h2>Blood</h2>  <p><i>Blood makes up about 7% of your weight.</i></p>	 <p>Digestive System</p>	<h2>Mouth</h2>  <p><i>There are as many bacteria in your mouth as there are people on Earth.</i></p>
 <p>Circulatory System</p>	<h2>Heart</h2>  <p><i>In your lifetime your heart pumps enough blood to fill 3 supertankers.</i></p>	 <p>Circulatory System</p>	<h2>Blood Vessels</h2>  <p><i>It takes only 8 seconds for blood to travel to your brain and back.</i></p>	 <p>Circulatory System</p>	<h2>Blood</h2>  <p><i>It would take 1,200,000 mosquitos to suck out all your blood.</i></p>	 <p>Digestive System</p>	<h2>Mouth</h2>  <p><i>You will produce enough saliva to fill two swimming pools during your life.</i></p>

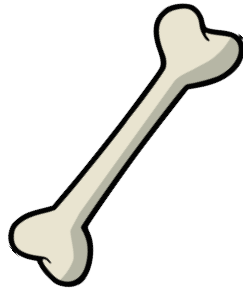
 <p>• • • • •</p> <p>Digestive System</p>	<h2>Esophagus</h2>  <p><i>It takes about 7 seconds for food to travel through your esophagus.</i></p>	 <p>• • • • •</p> <p>Digestive System</p>	<h2>Stomach</h2>  <p><i>Your stomach makes a new lining every 3 days so it doesn't digest itself.</i></p>	 <p>• • • • •</p> <p>Digestive System</p>	<h2>Small Intestine</h2>  <p><i>The surface area of your small intestine is about half a basketball court.</i></p>	 <p>• • • • •</p> <p>Digestive System</p>	<h2>Large Intestine</h2>  <p><i>The average human has 400 species of bacteria in their large intestine.</i></p>
 <p>• • • • •</p> <p>Digestive System</p>	<h2>Esophagus</h2>  <p><i>Your whole digestive tract is about 9 metres long.</i></p>	 <p>• • • • •</p> <p>Digestive System</p>	<h2>Stomach</h2>  <p><i>Food stays in your stomach for 2-3 hours.</i></p>	 <p>• • • • •</p> <p>Digestive System</p>	<h2>Small Intestine</h2>  <p><i>A woman's small intestine is longer than a man's.</i></p>	 <p>• • • • •</p> <p>Digestive System</p>	<h2>Large Intestine</h2>  <p><i>It takes 12-48 hours for food to travel through your large intestine.</i></p>

 <p>Nervous System</p>	<h2>Brain</h2>  <p><i>Under ten, a child's brain uses twice as much energy as an adult brain.</i></p>	 <p>Nervous System</p>	<h2>Spinal Cord</h2>  <p><i>Your spinal cord has about 13,500,000 neurons.</i></p>	 <p>Nervous System</p>	<h2>Nerves</h2>  <p><i>Nerve impulses travel at up to 270 km/h.</i></p>	 <p>Musculoskeletal System</p>	<h2>Skeletal Muscle</h2>  <p><i>You use 200 muscles to take a single step.</i></p>
 <p>Nervous System</p>	<h2>Brain</h2>  <p><i>Your brain uses 20% of the oxygen that enters your bloodstream.</i></p>	 <p>Nervous System</p>	<h2>Spinal Cord</h2>  <p><i>Your spinal cord can command reflex actions without needing your brain.</i></p>	 <p>Nervous System</p>	<h2>Nerves</h2>  <p><i>All the neurons in your body, laid end-to-end, would stretch 1000 km.</i></p>	 <p>Musculoskeletal System</p>	<h2>Skeletal Muscle</h2>  <p><i>The word "muscle" comes from musculus — Latin for "little mouse".</i></p>



Musculoskeletal
System

Bones



The hardest bone in your body is your jawbone.



Musculoskeletal
System

Ligaments



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Your bones renew themselves — every 7 years your skeleton is replaced.



Musculoskeletal
System

Cartilage

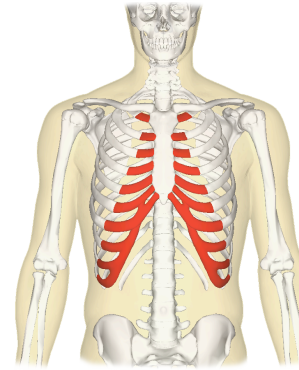


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During the day you get 1 cm shorter as the cartilage in your spine compresses.



Musculoskeletal
System

Smooth Muscles

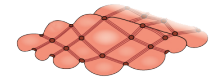
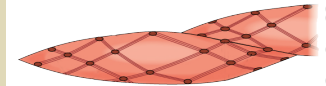


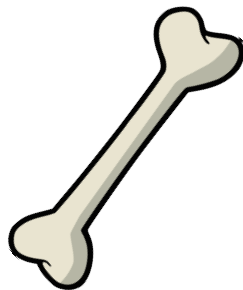
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If you could hear frequencies below 20 Hz, you could hear your muscles moving.



Musculoskeletal
System

Bones



There are over 50 bones in your feet.



Musculoskeletal
System

Ligaments

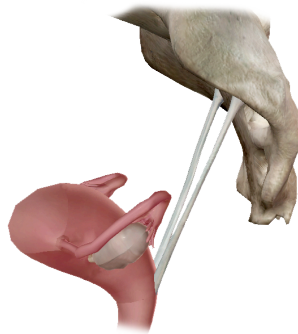


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Your spinal column has over 200 ligaments.



Musculoskeletal
System

Cartilage

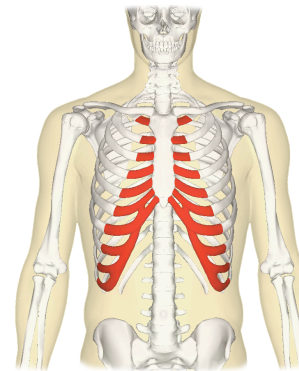


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You had more bones when you were a baby than you do now.



Musculoskeletal
System

Smooth Muscles

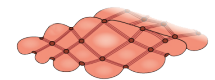
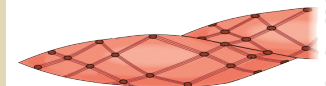
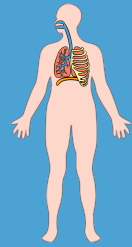


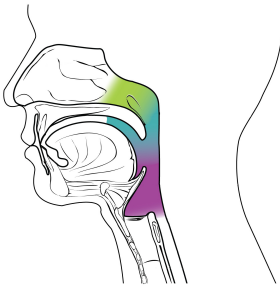
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About 40% of your weight is muscle tissue.



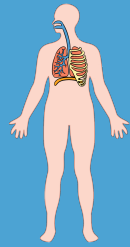
Respiratory
System

Pharynx



You exhale almost 20 mL of water per hour when you breathe.

Image © OpenStax CC BY 3.0 license



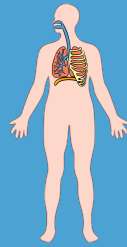
Respiratory
System

Trachea



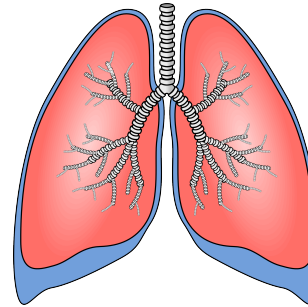
A hieroglyph of the lungs and windpipe was an important symbol of unity in Ancient Egypt.

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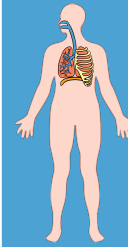
Respiratory
System

Lungs



The lungs are the only organ that can float on water.

Image © Bruce Blaus CC BY 3.0 license

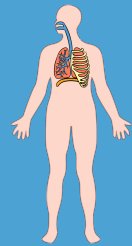


Respiratory
System

Bronchii

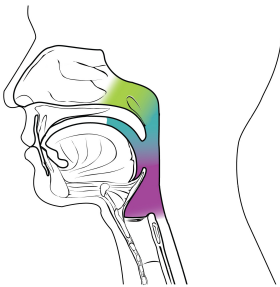


Asthma was once treated with psychotherapy.



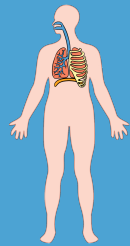
Respiratory
System

Pharynx



When you breathe really quickly your stomach produces more acid, which makes you hungry.

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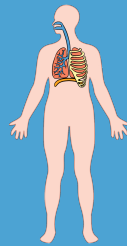
Respiratory
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Trachea



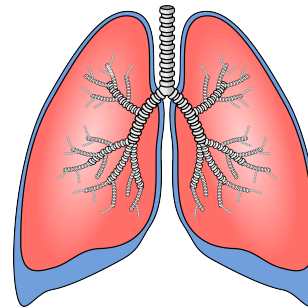
It's slimy, but mucus is a vital part of your airways — trapping dirt and bacteria.

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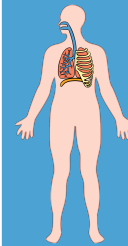
Respiratory
System

Lungs



Your lungs have the same surface area as a tennis court.

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Respiratory
System

Bronchii



You have about 2400 km of airways.



Lymphatic
System

Spleen



Your spleen is about the size of your fist.

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Lymphatic
System

Tonsils



Tonsils can bounce higher than a rubber ball for the first 30 minutes after they are removed.



Lymphatic
System

Lymph Nodes



You have 500-700 lymph nodes in your body.



Lymphatic
System

Lymph Vessels



Lymph is named for Lympha, the Roman goddess of fresh water.



Lymphatic
System

Spleen



You can lose up to 75% of your spleen before your health is seriously affected.

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Lymphatic
System

Tonsils

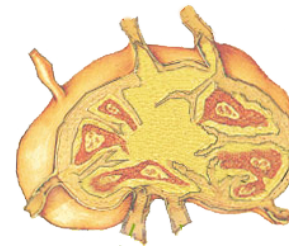


Tonsils trap bacteria before they enter the body.



Lymphatic
System

Lymph Nodes

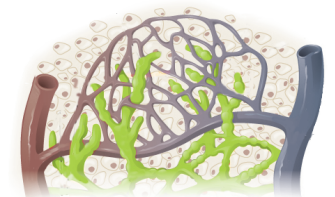


Swollen lymph nodes (buboes) gave bubonic plague its name.


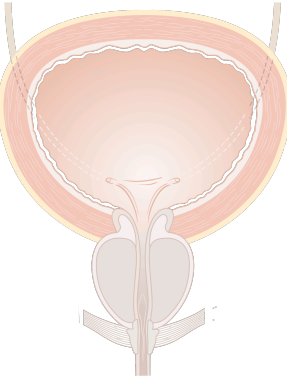

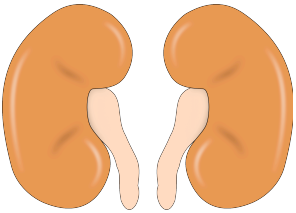

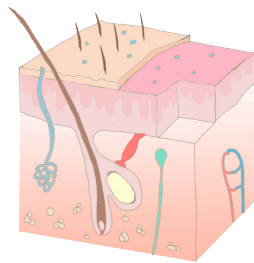

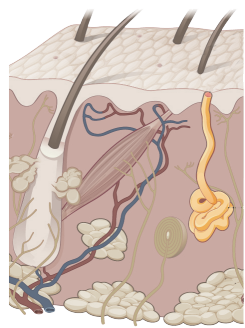

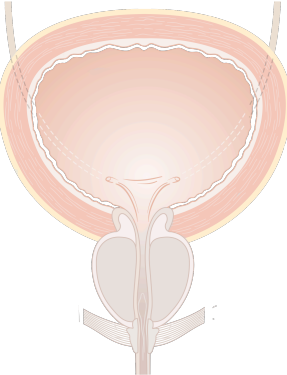

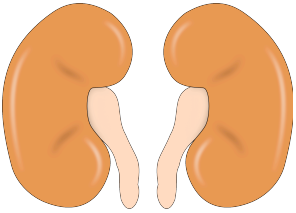

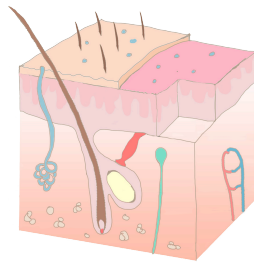

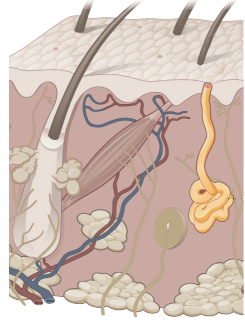



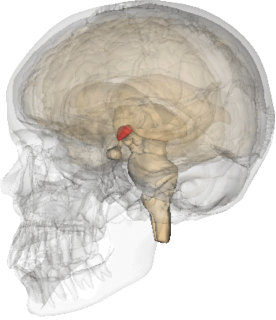

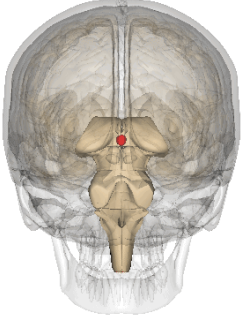

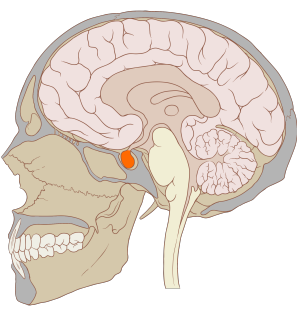



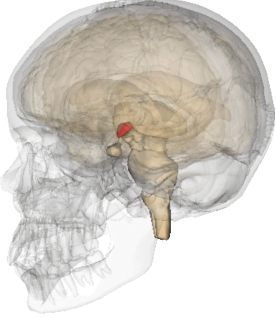

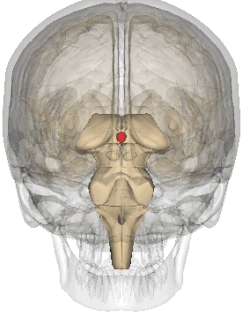

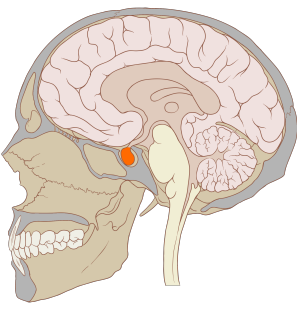


Lymphatic
System

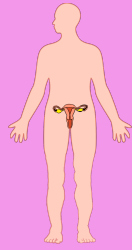
Lymph Vessels



Lymph flows up towards your neck, carrying waste.

 <p>Urinary System</p>	<h2>Bladder</h2>  <p>Urine can stay in your bladder for up to 5 hours.</p>	 <p>Urinary System</p>	<h2>Kidneys</h2>  <p>Your entire blood supply is filtered 400 times a day by your kidneys.</p>	 <p>Integumentary System</p>	<h2>Skin</h2>  <p>You shed about 600,000 particles of skin every hour.</p>	 <p>Integumentary System</p>	<h2>Exocrine Glands</h2>  <p>You have between 2 and 5 million sweat glands.</p>
 <p>Urinary System</p>	<h2>Bladder</h2>  <p>Your bladder holds about half a litre of urine.</p>	 <p>Urinary System</p>	<h2>Kidneys</h2>  <p>Each of your kidneys is about the size of a computer mouse.</p>	 <p>Integumentary System</p>	<h2>Skin</h2>  <p>Your skin is about 15% of your body weight.</p>	 <p>Integumentary System</p>	<h2>Exocrine Glands</h2>  <p>Regular sweat is water, salt, and potassium. Stress sweat has fatty acids and proteins.</p>

 <p>Endocrine System</p>	<h2>Hypothalamus</h2>  <p><i>Your hypothalamus makes oxycontin, affecting sexual and social behaviour.</i></p>	 <p>Endocrine System</p>	<h2>Pineal Gland</h2>  <p><i>Pinea is Latin for "pine cone", which is what your pineal gland look like.</i></p>	 <p>Endocrine System</p>	<h2>Pituitary Gland</h2>  <p><i>Your pituitary gland is the size of a pea and weighs about 5 grams.</i></p>	 <p>Endocrine System</p>	<h2>Thyroid</h2>  <p><i>Your thyroid affects your respiratory, digestive, musculoskeletal, and nervous systems.</i></p>
 <p>Endocrine System</p>	<h2>Hypothalamus</h2>  <p><i>Your endocrine system produces hormones that regulate metabolism, growth, and emotions.</i></p>	 <p>Endocrine System</p>	<h2>Pineal Gland</h2>  <p><i>Your pineal gland produces melatonin, which regulates sleep.</i></p>	 <p>Endocrine System</p>	<h2>Pituitary Gland</h2>  <p><i>Secretions from your pituitary gland determine how much food you eat.</i></p>	 <p>Endocrine System</p>	<h2>Thyroid</h2>  <p><i>Your thyroid is shaped like a butterfly.</i></p>



Reproductive System ♀

Ovaries

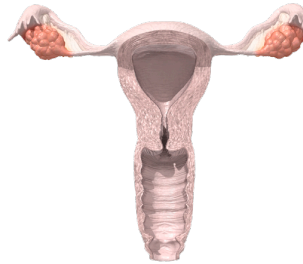
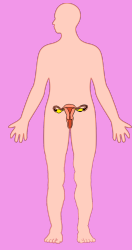


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Although ovaries contain a million oocytes at birth, only about 500 develop during life.



Reproductive System ♀

Uterus

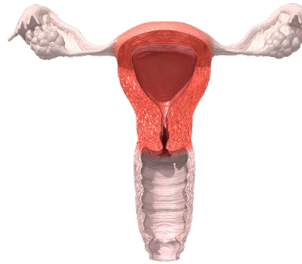
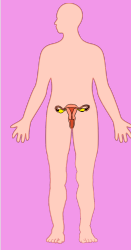


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The uterus is about the size and shape of a small pear.



Reproductive System ♀

Vagina

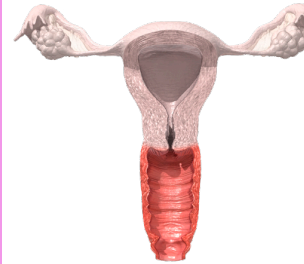
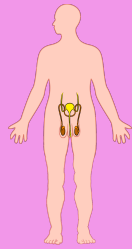


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In Latin, vagina means "sheath".



Reproductive System ♂

Penis

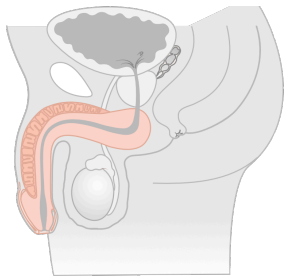
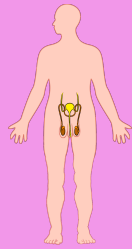


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Half the penis is actually inside the body.



Reproductive System ♂

Testes

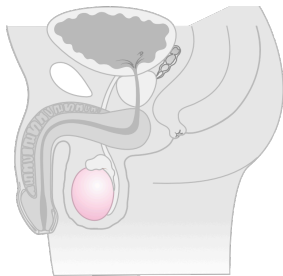
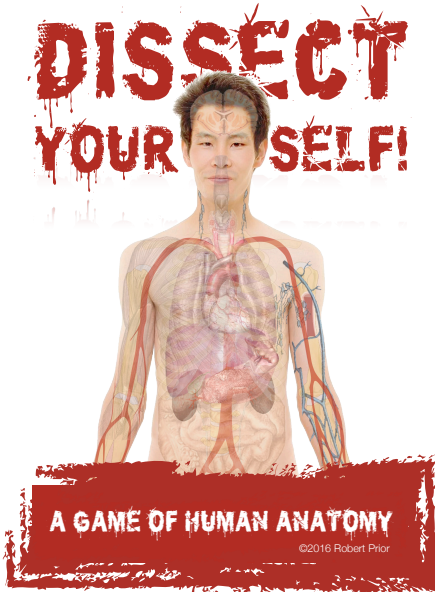
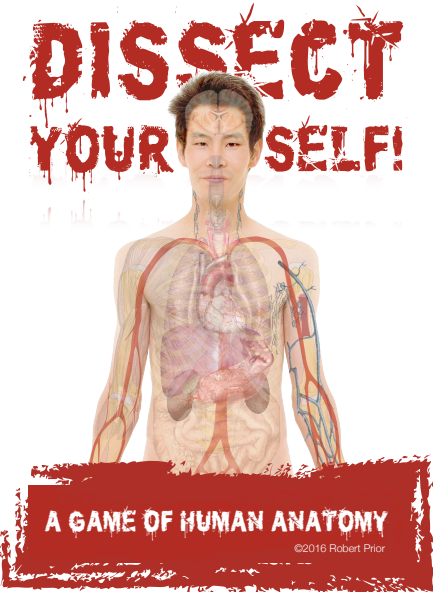
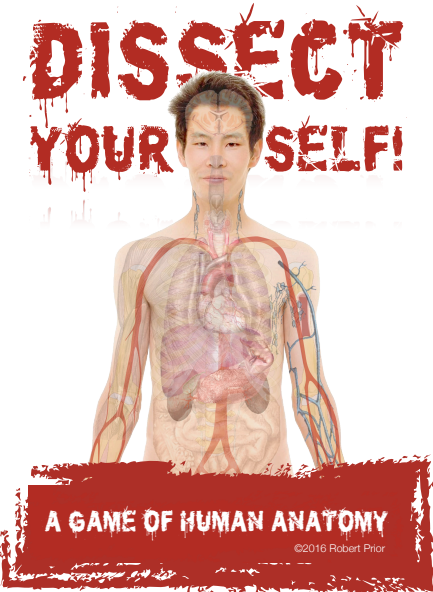
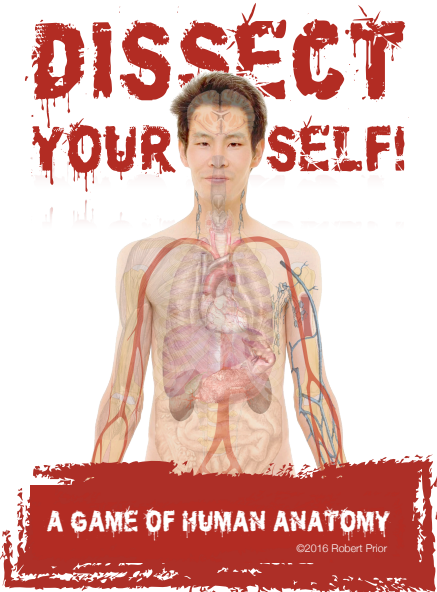
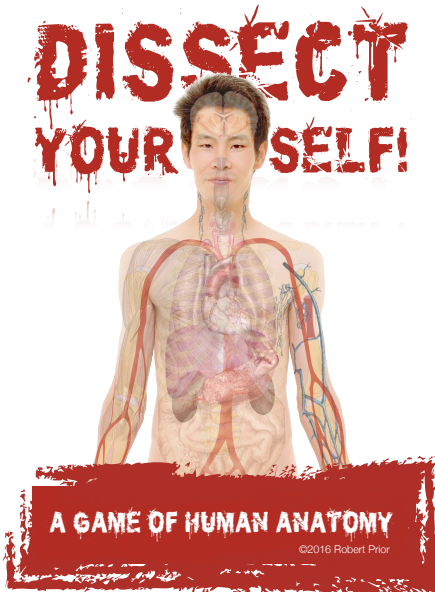
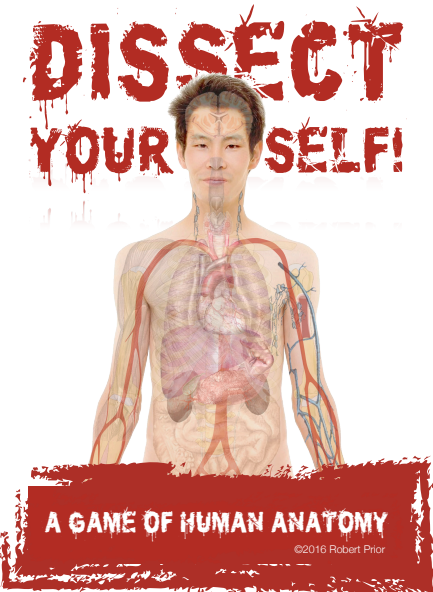
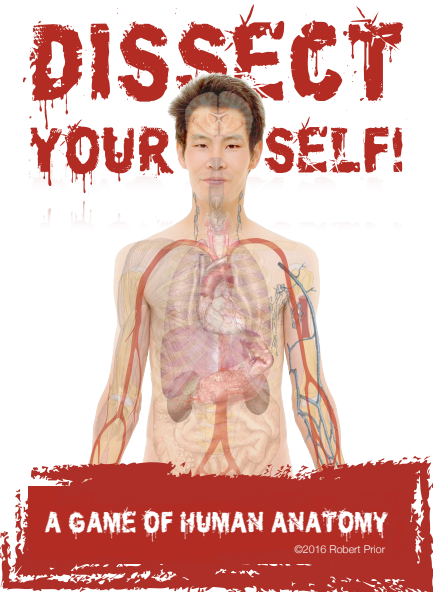
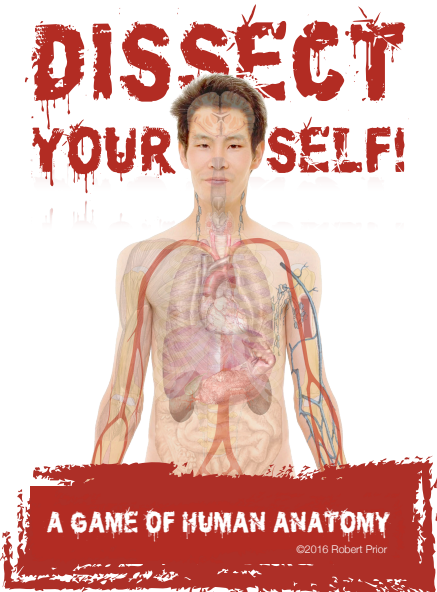


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Testes hang outside the body to keep sperm cool.

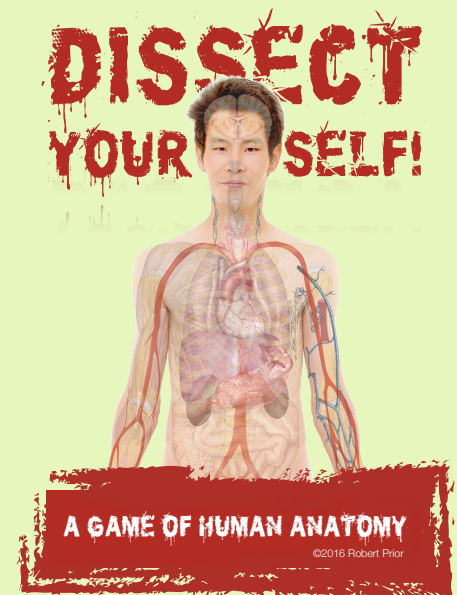
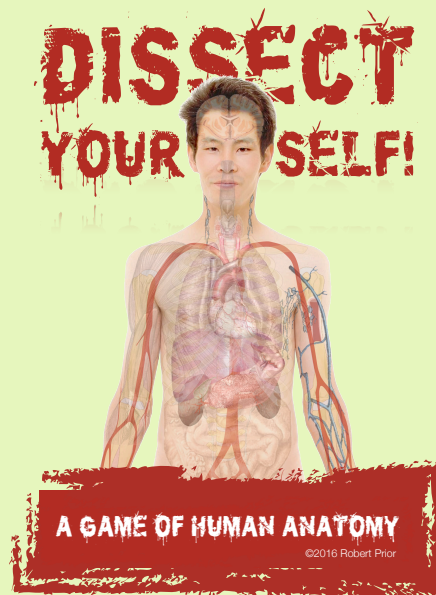
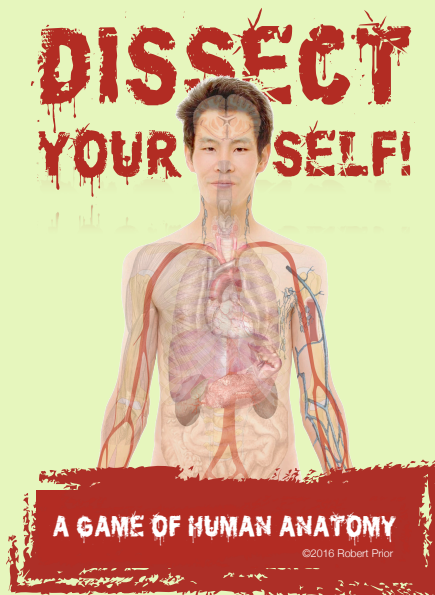
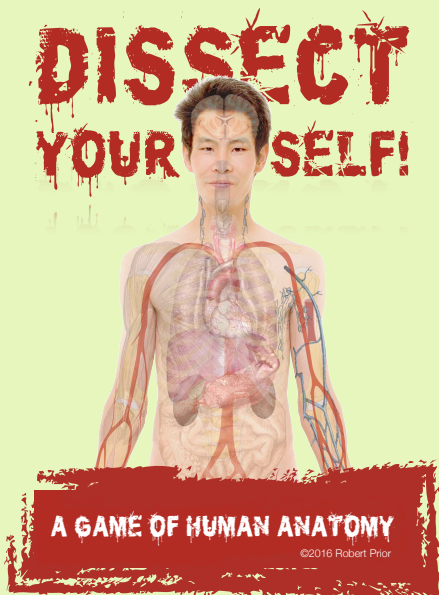
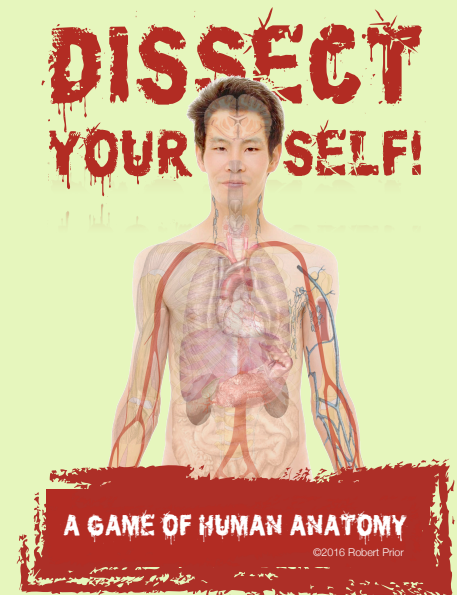
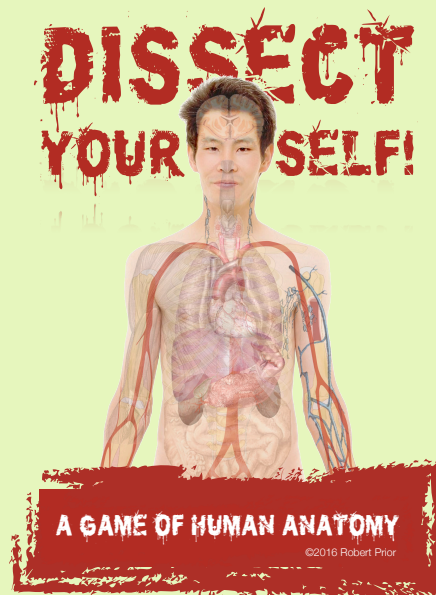
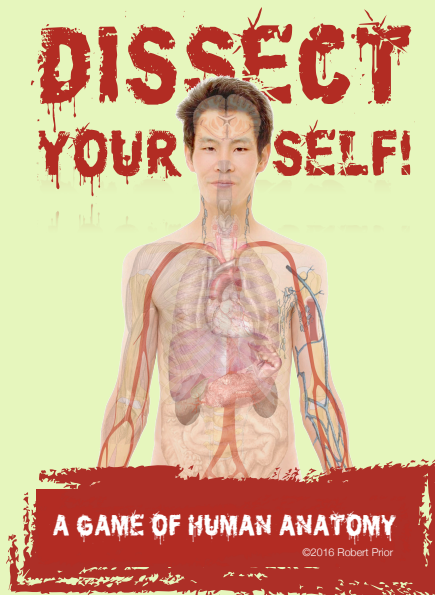
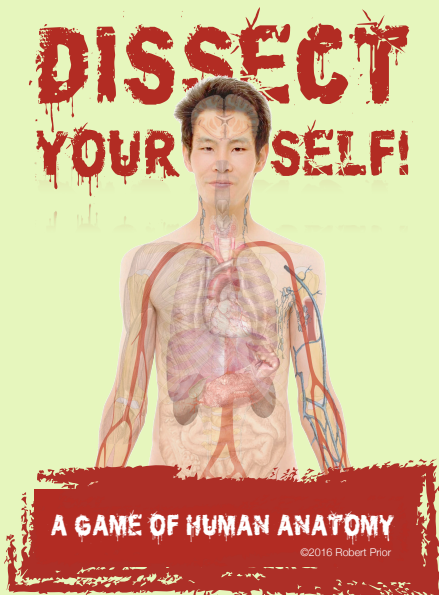
DISSECT YOURSELF Card Backs



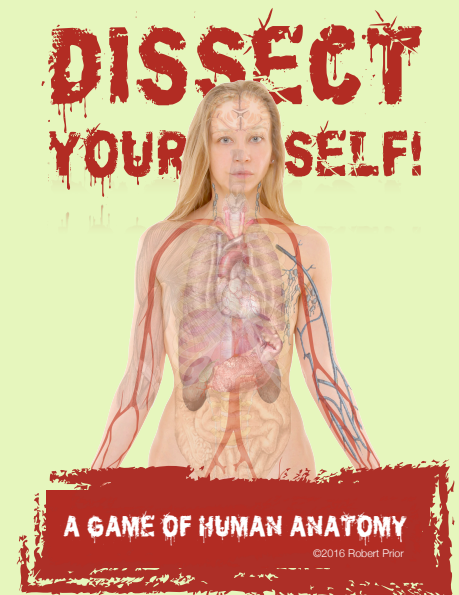
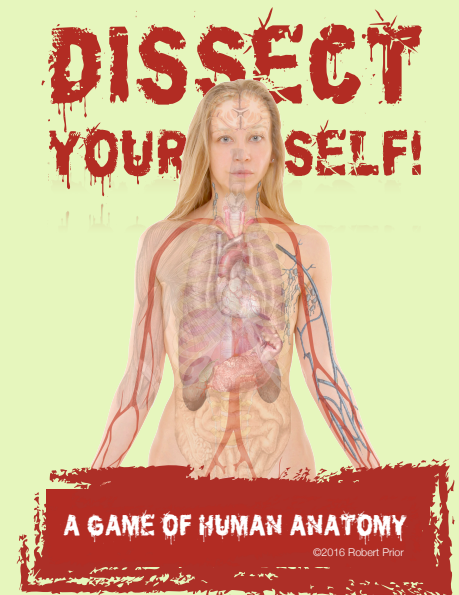
DISSECT YOURSELF Alternate Card Backs



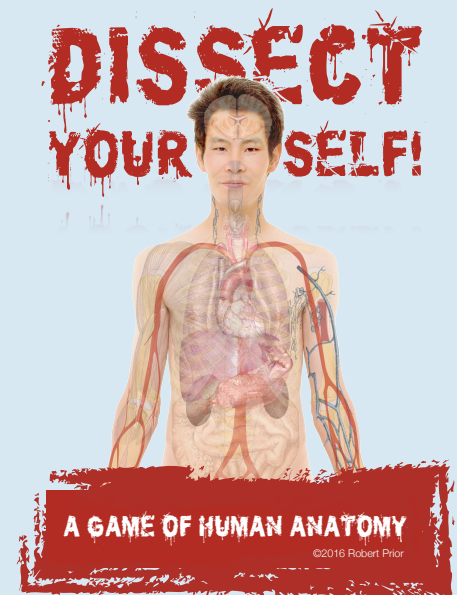
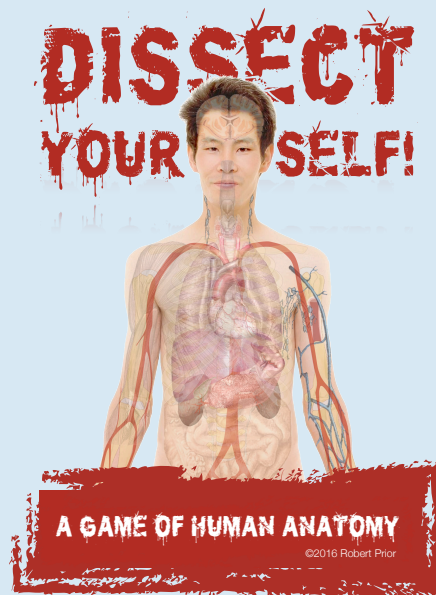
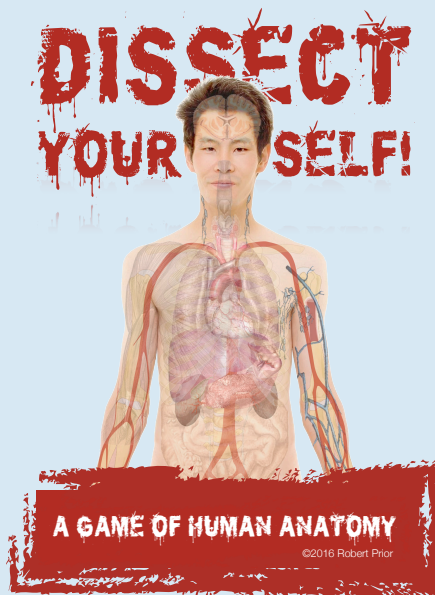
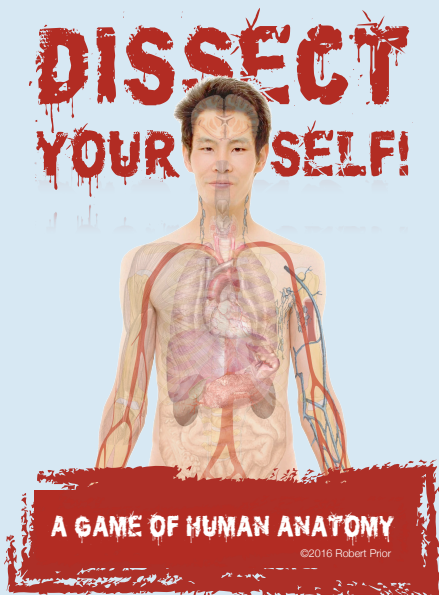
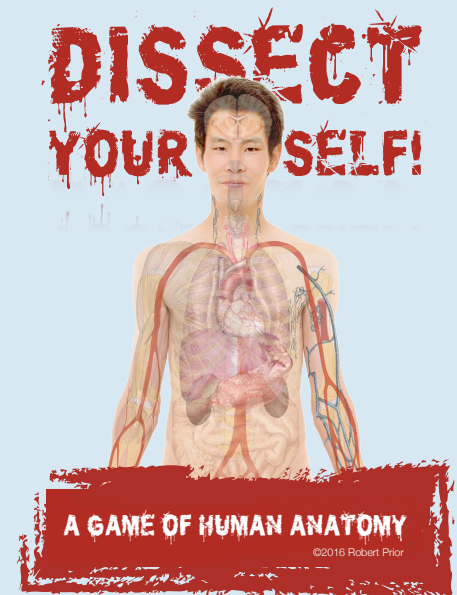
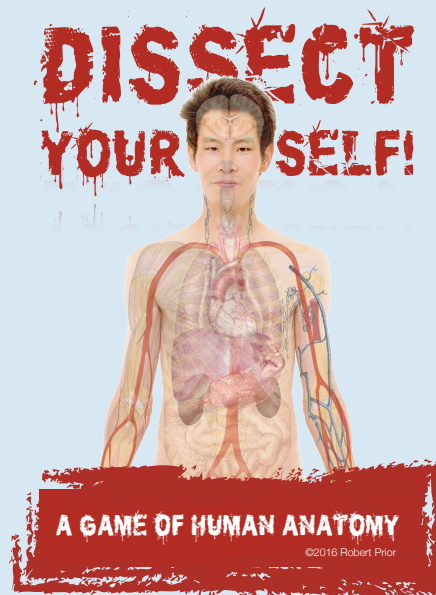
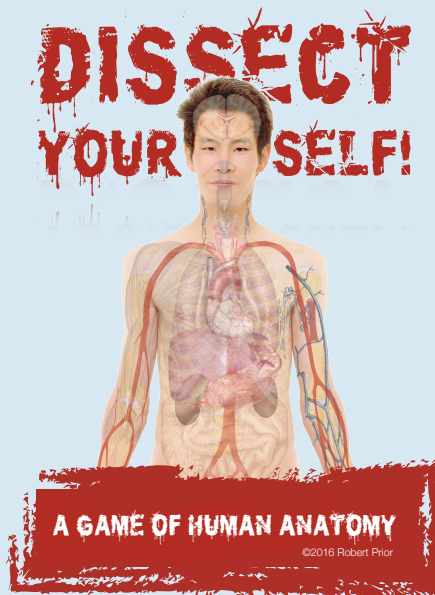
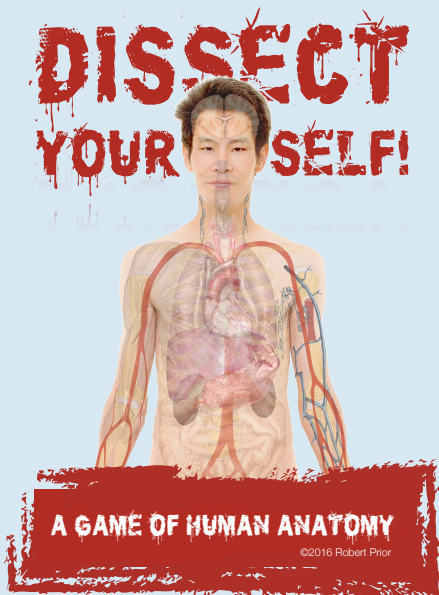
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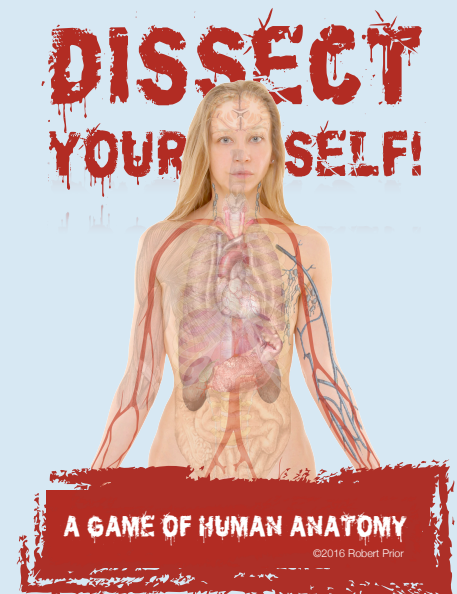
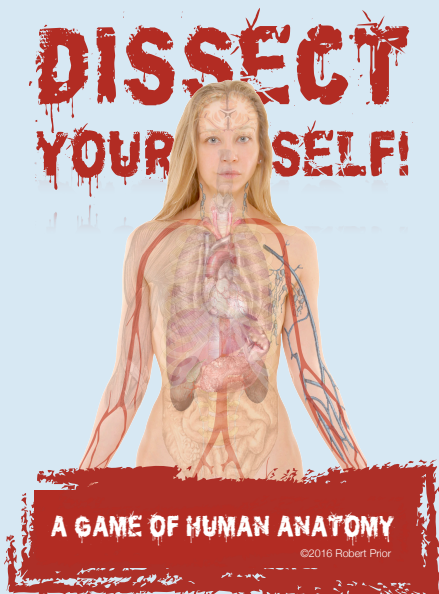
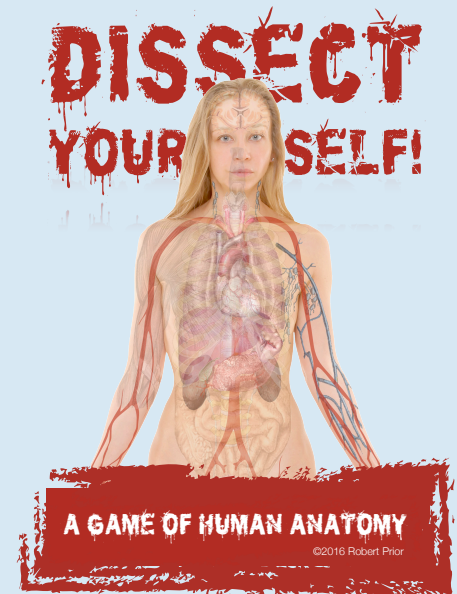
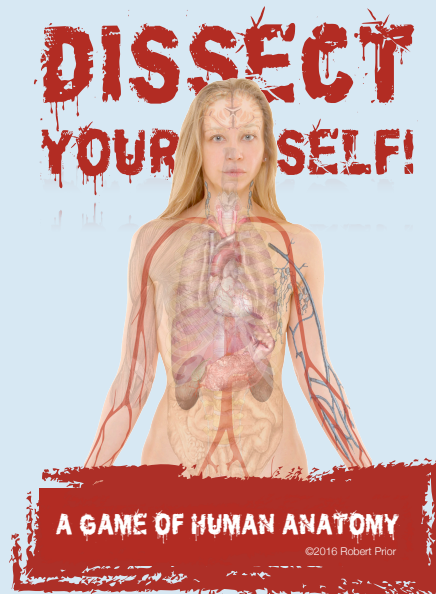
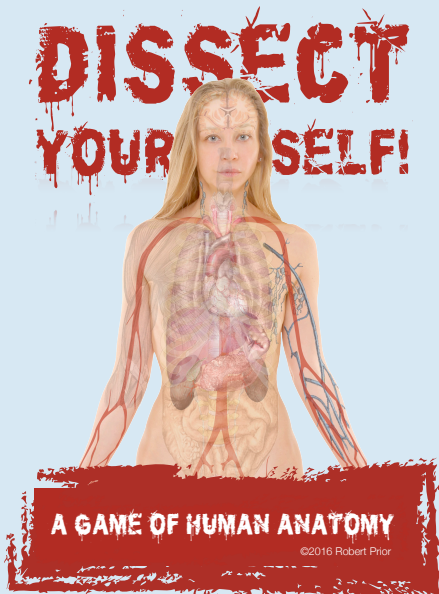
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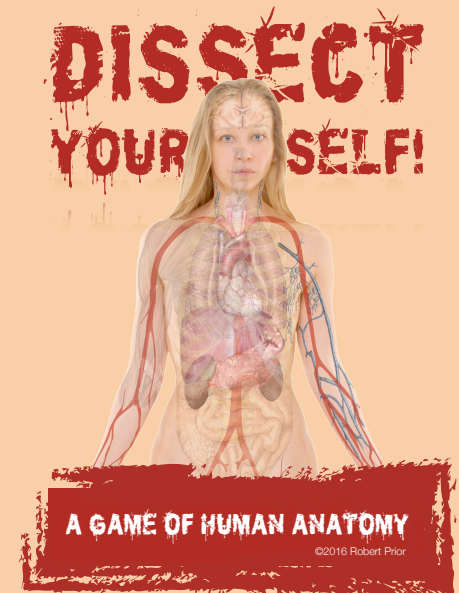
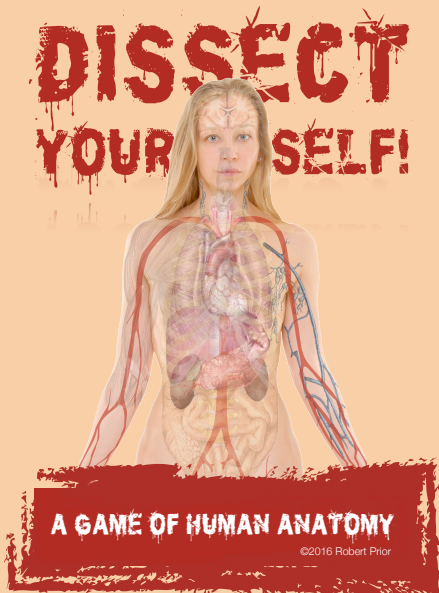
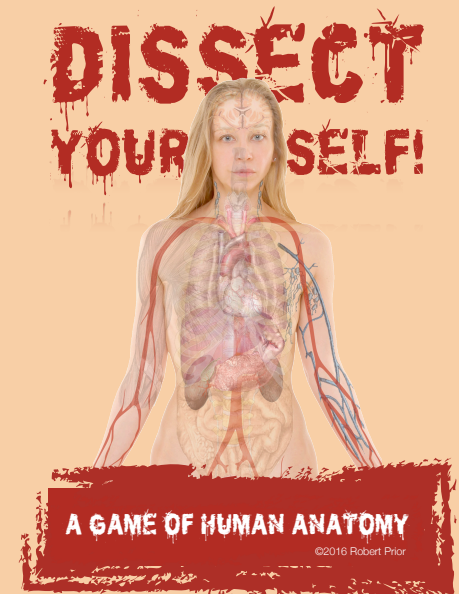
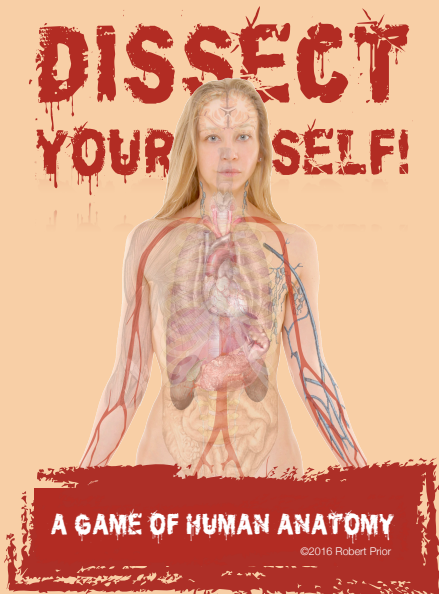
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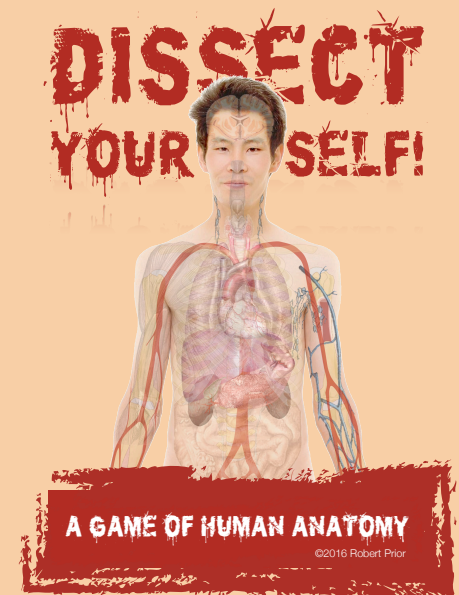
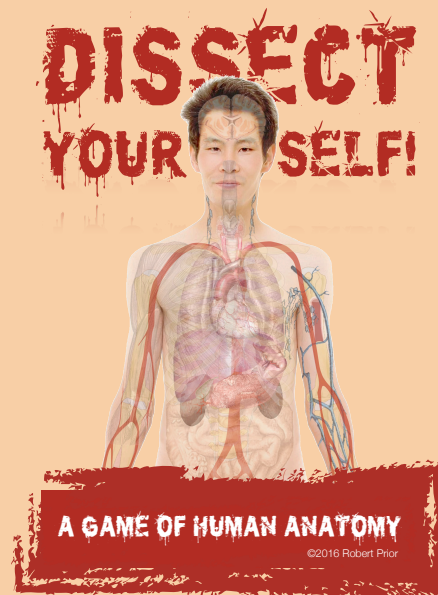
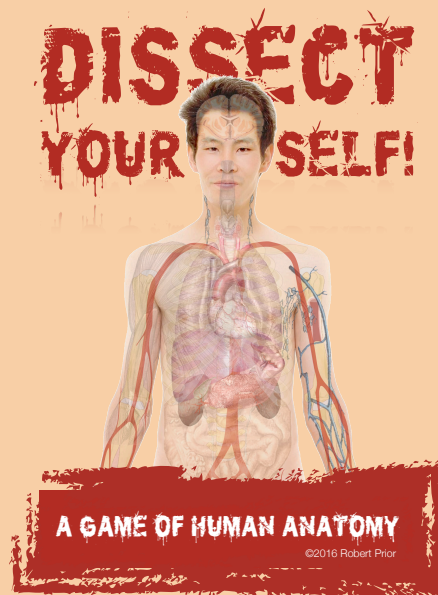
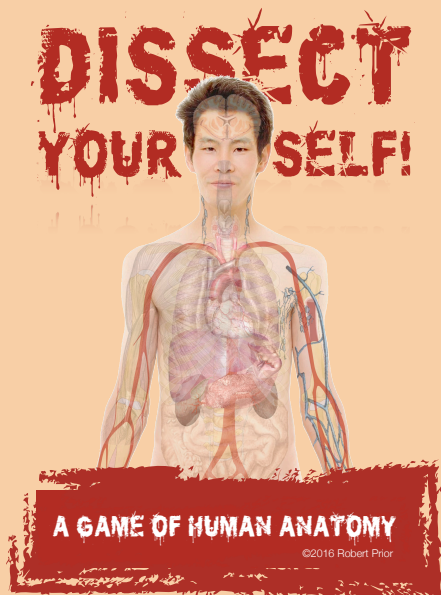
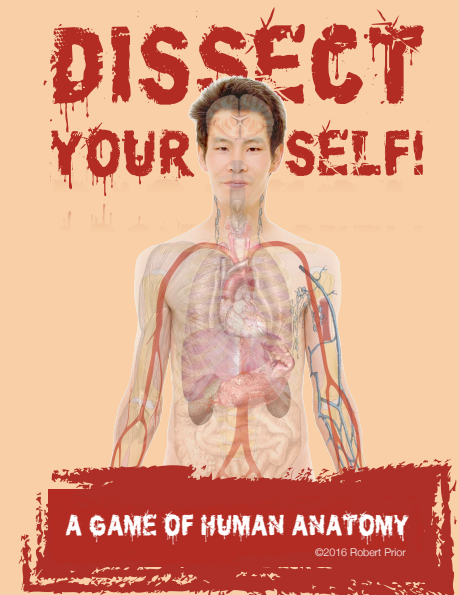
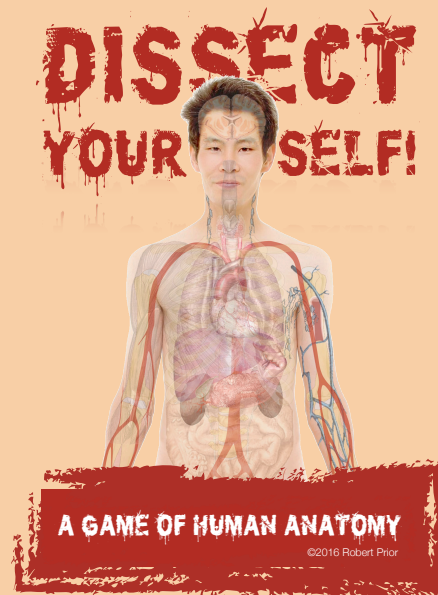
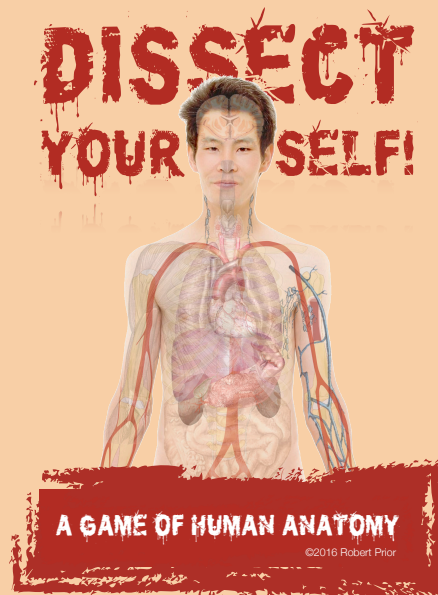
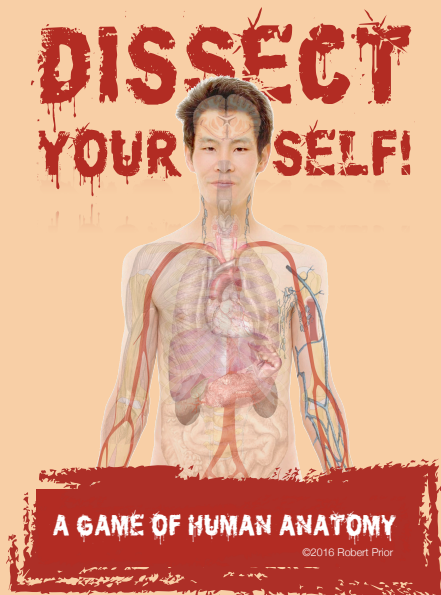
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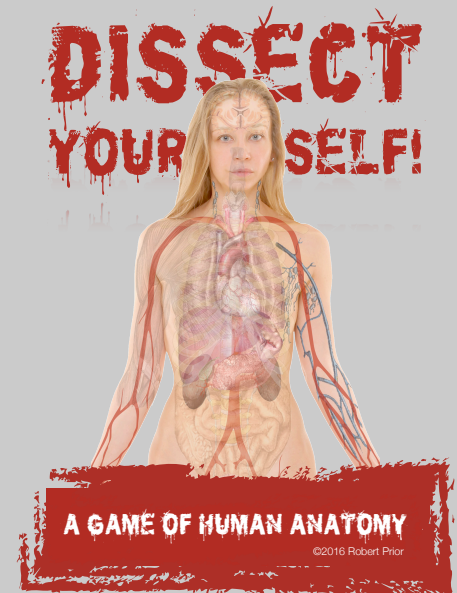
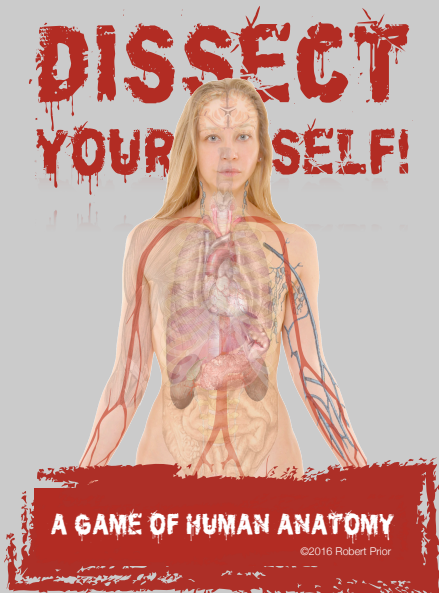
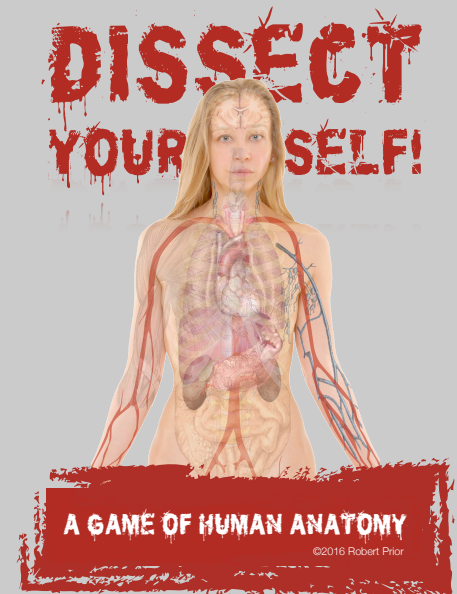
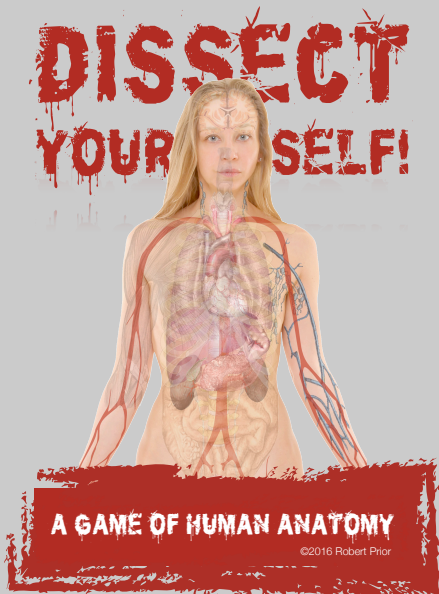
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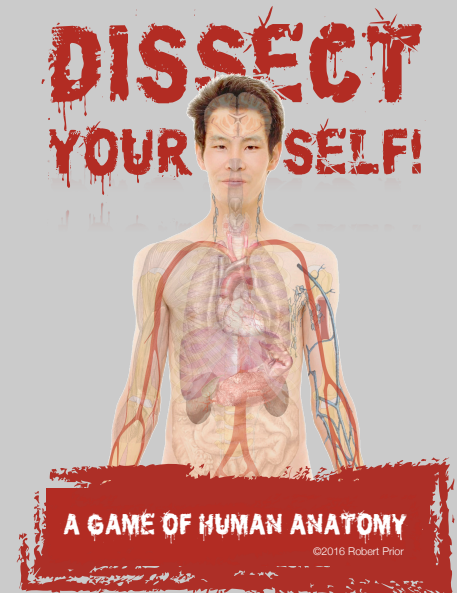
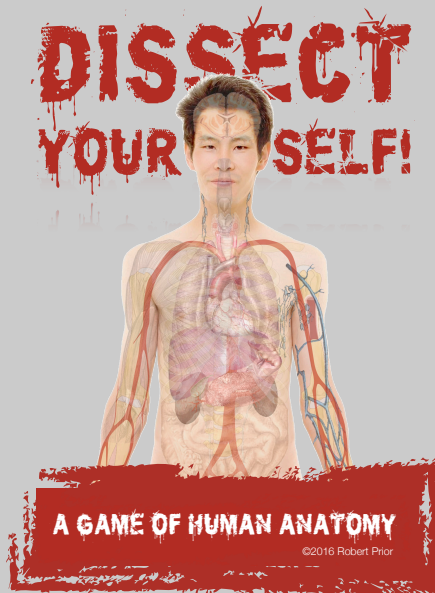
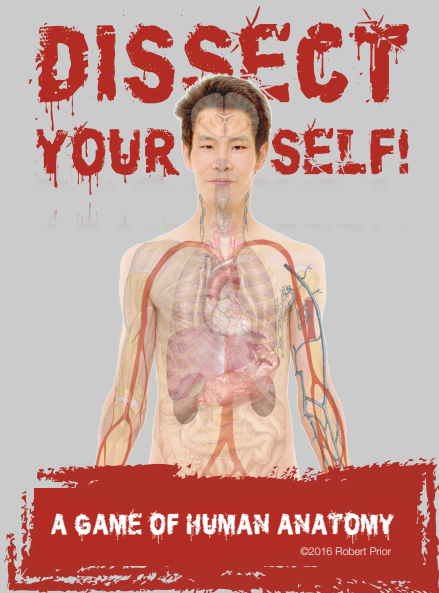
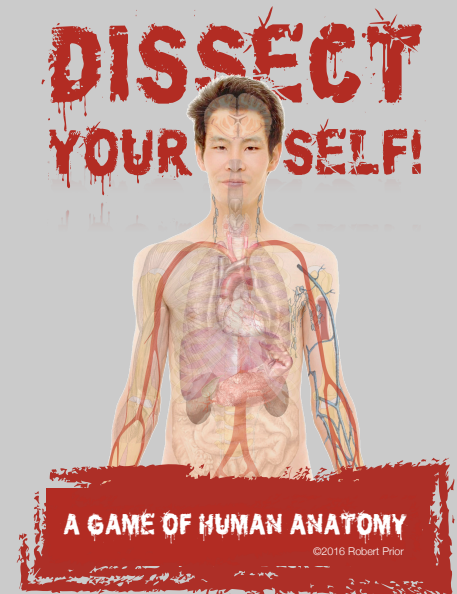
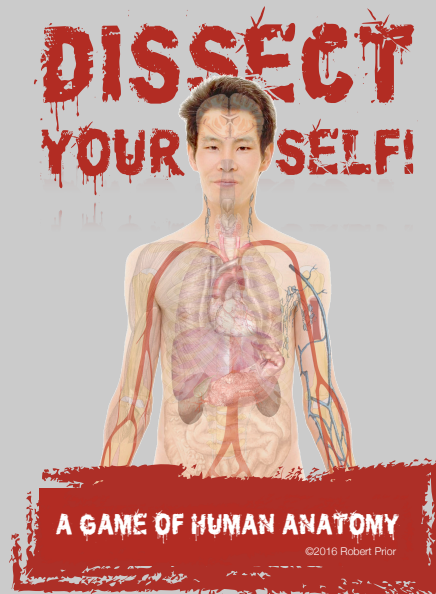
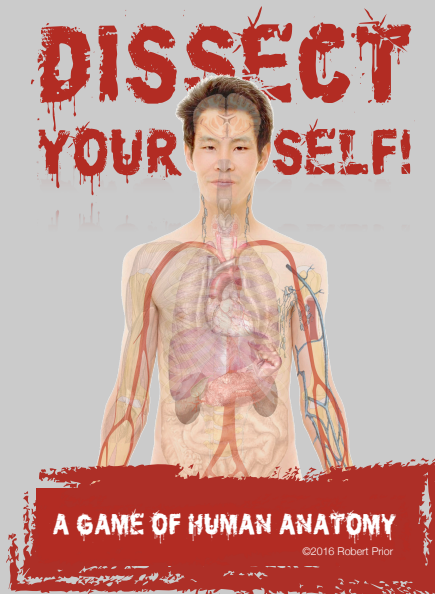
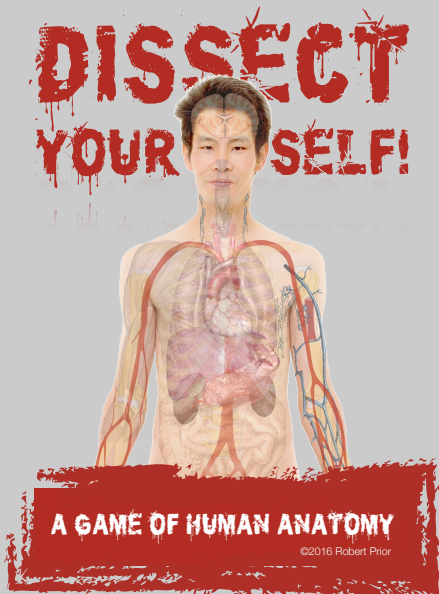
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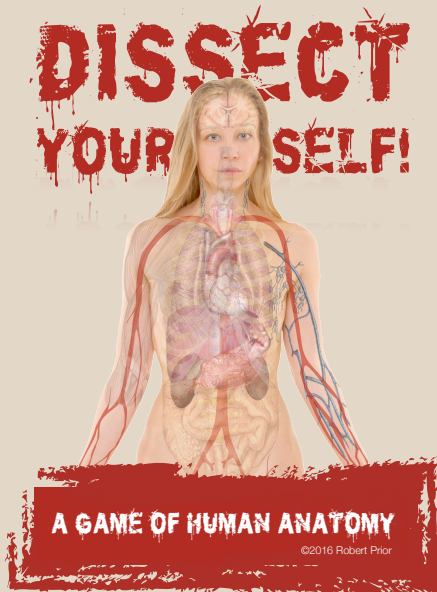
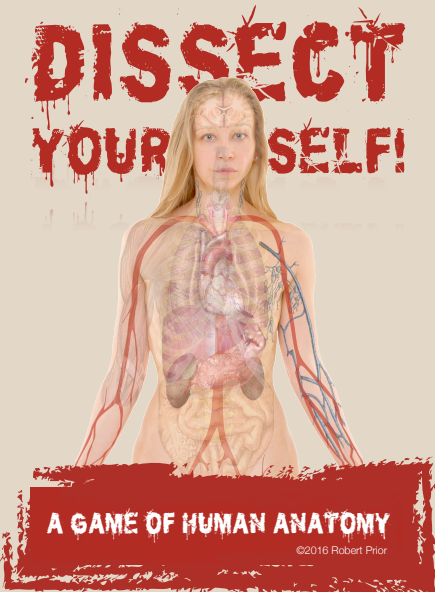
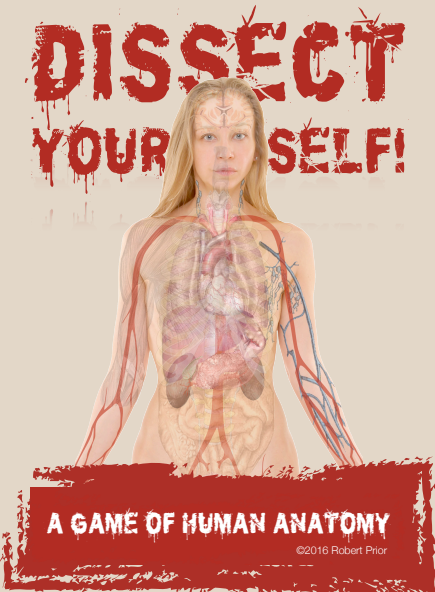
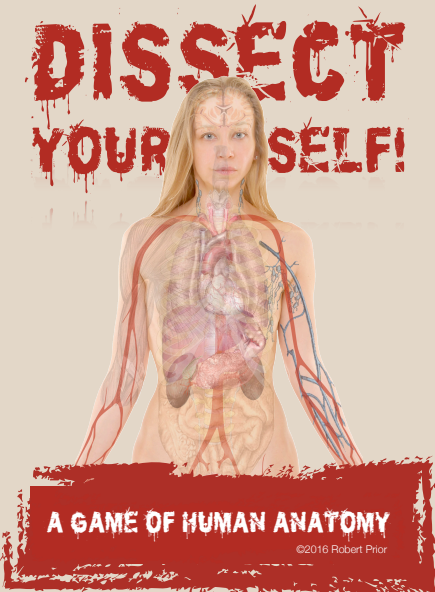
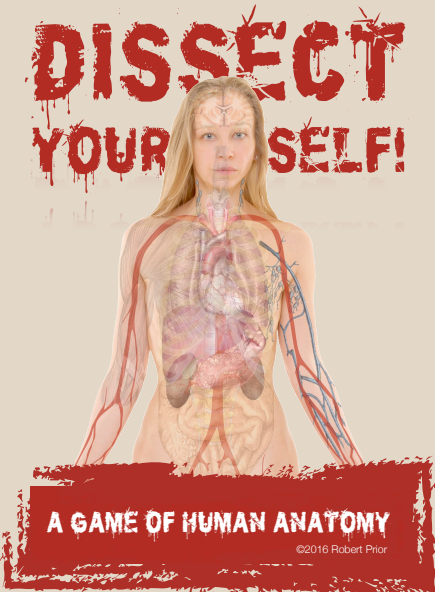
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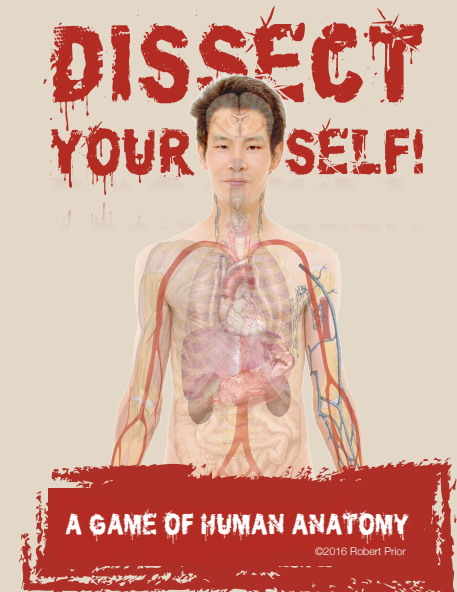
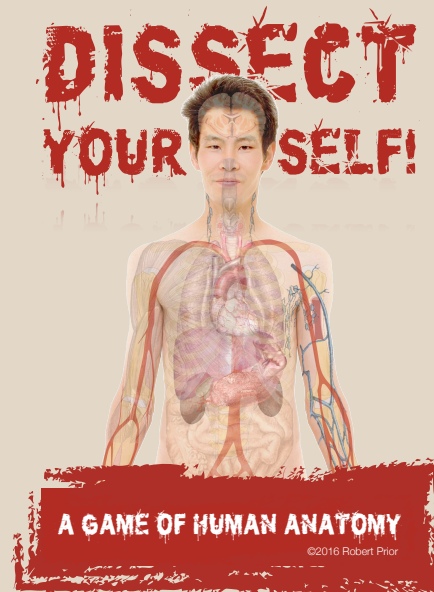
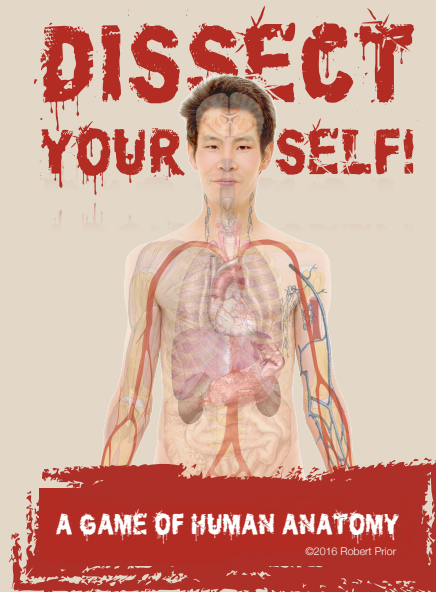
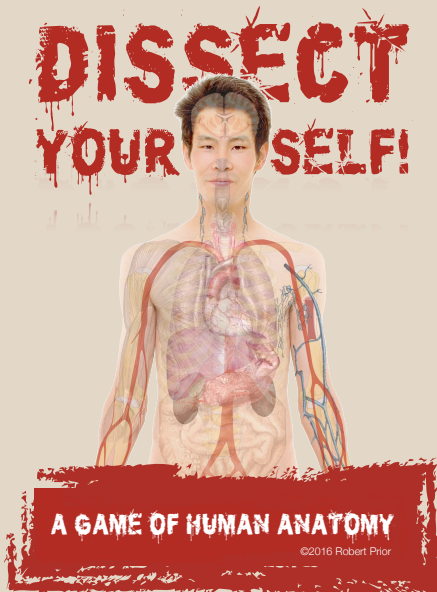
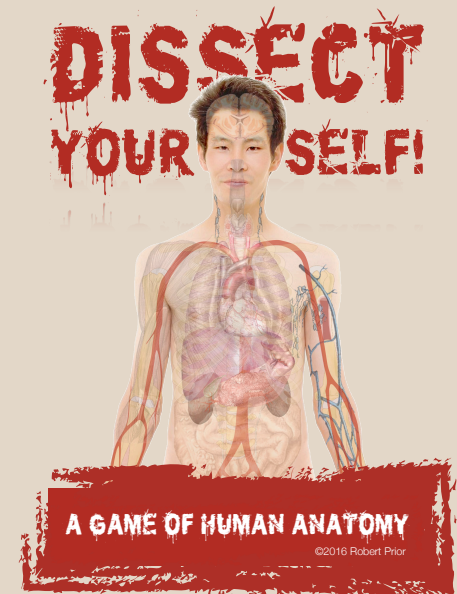
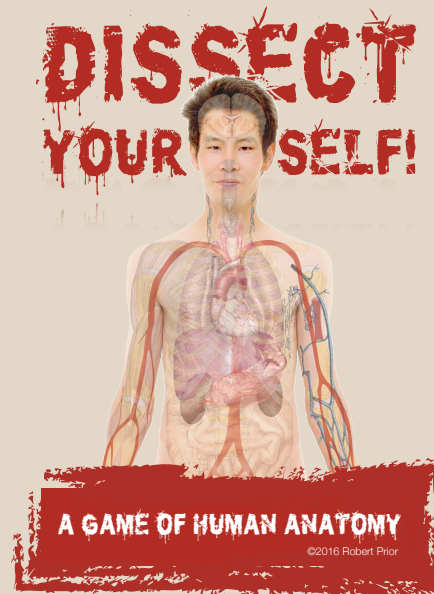
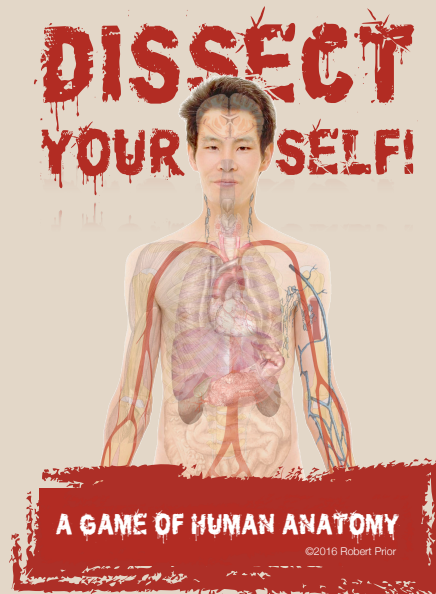
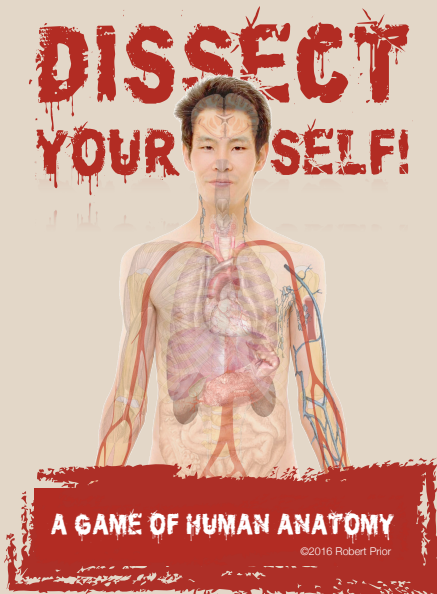
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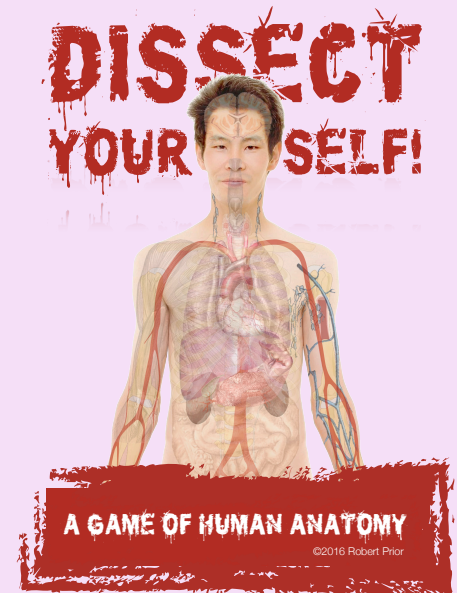
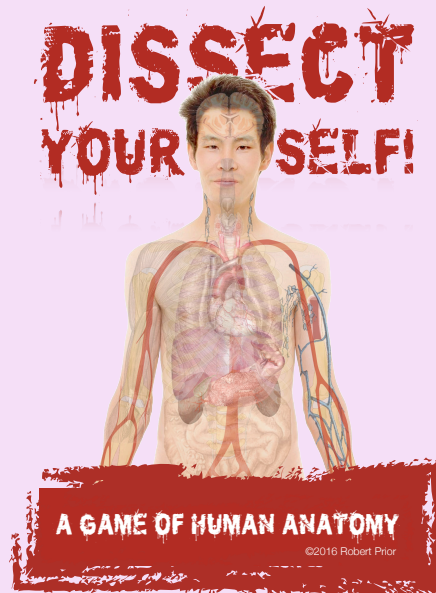
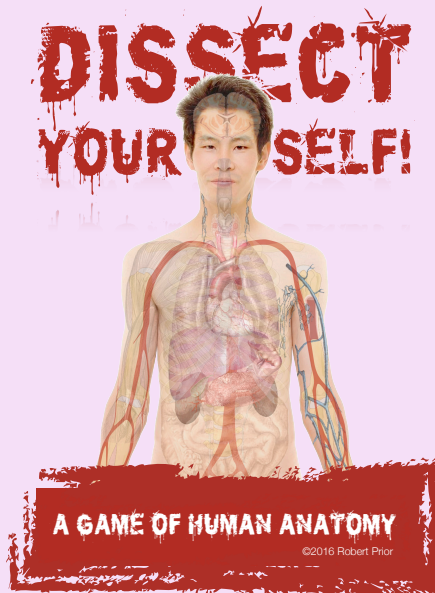
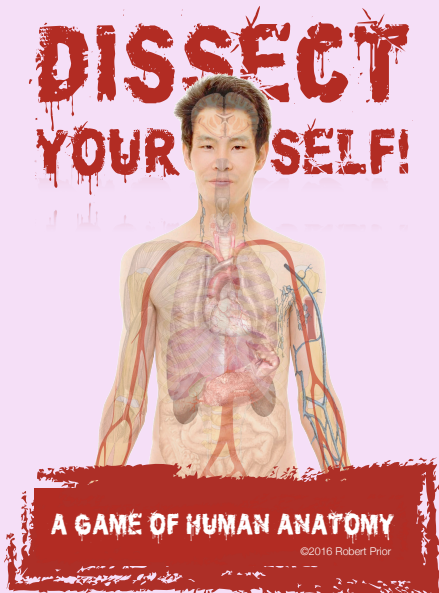
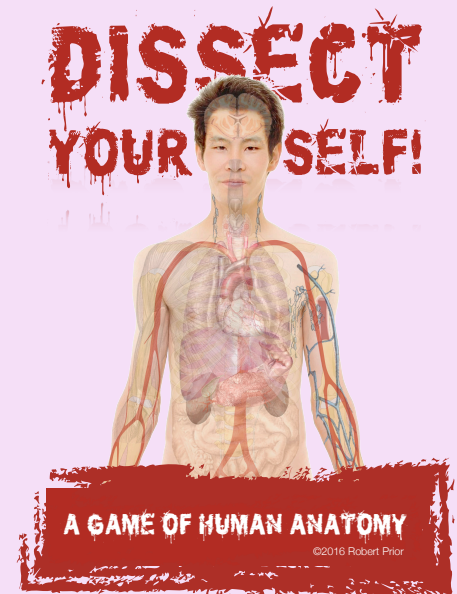
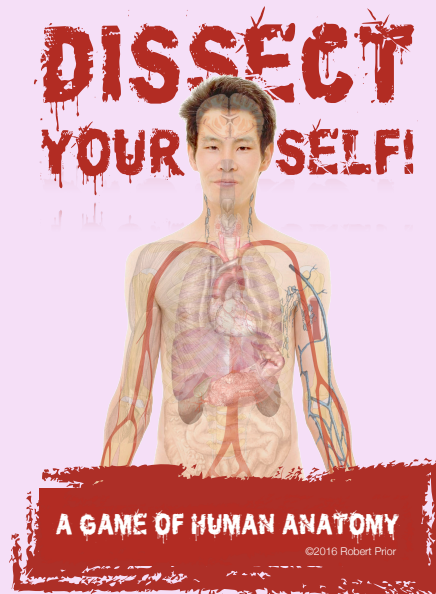
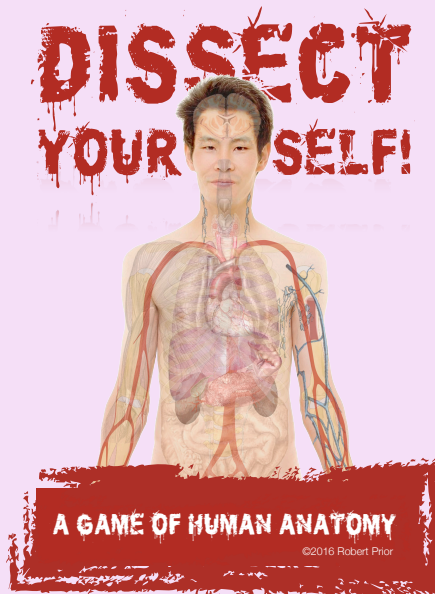
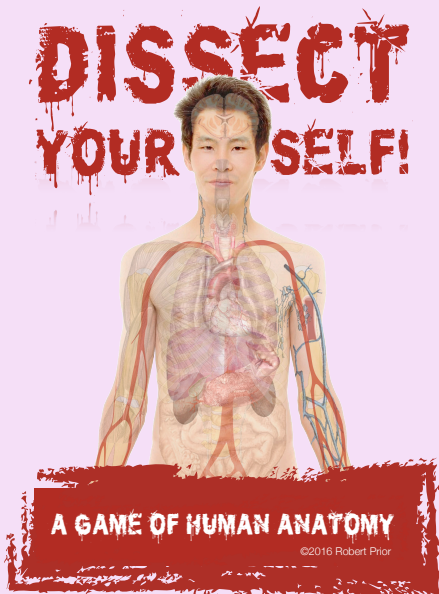
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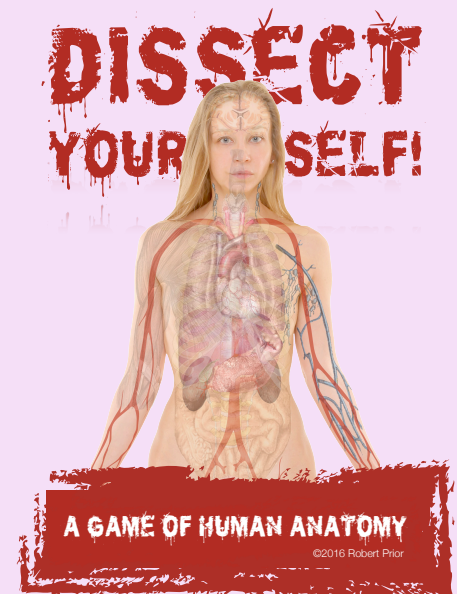
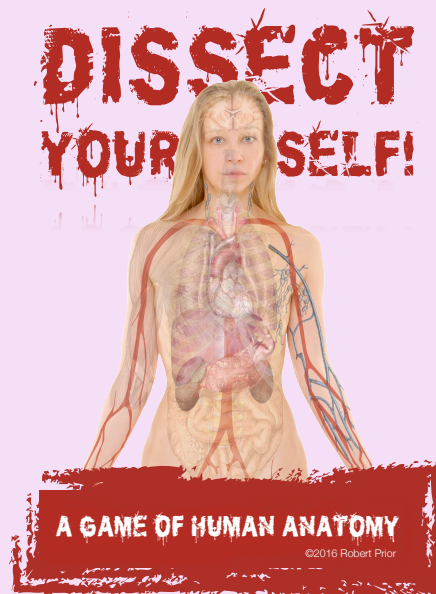
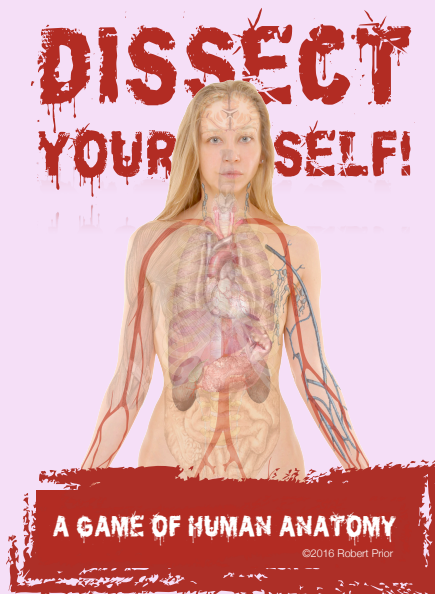
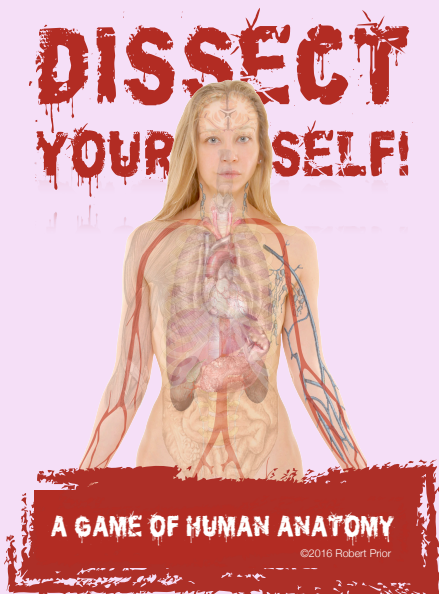
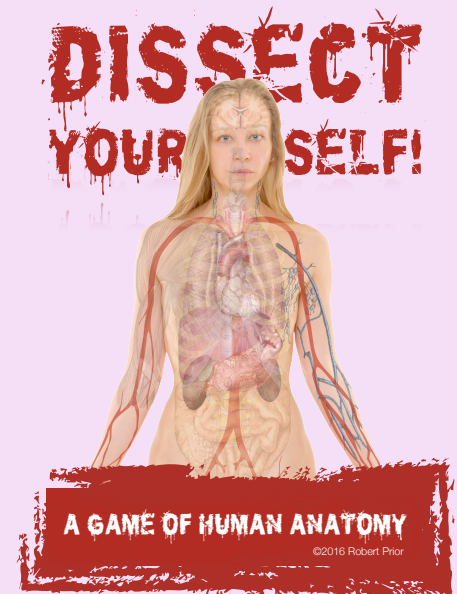
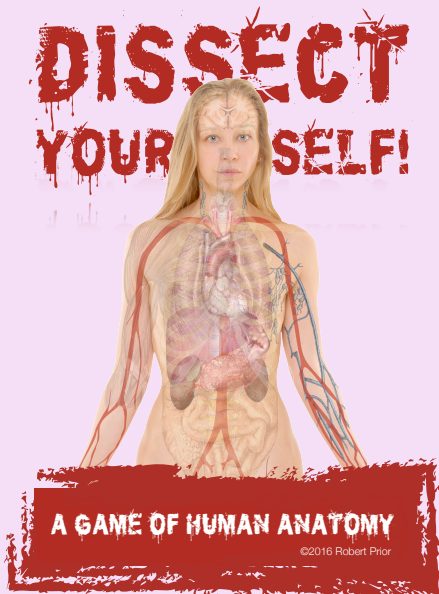
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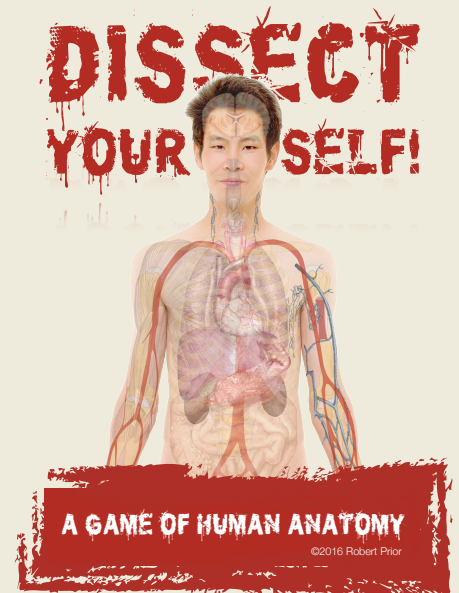
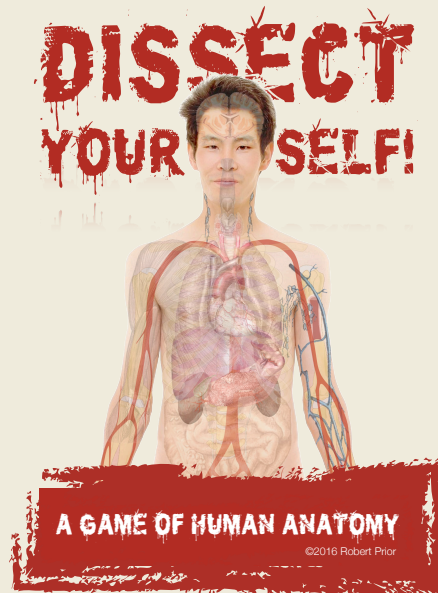
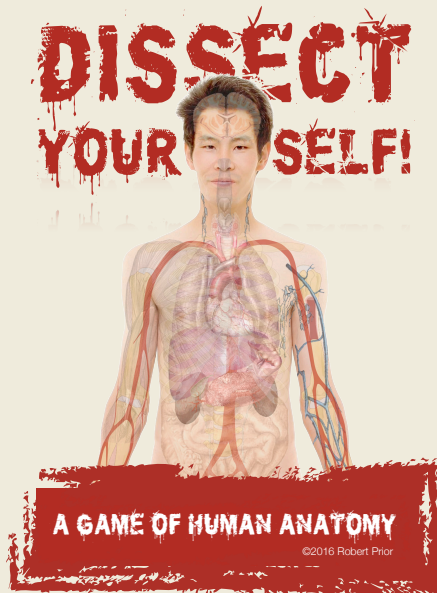
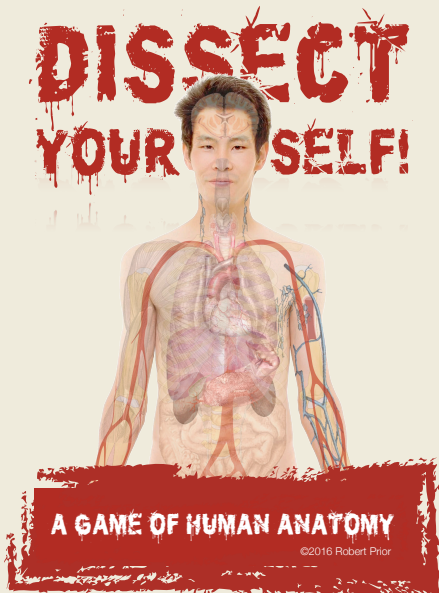
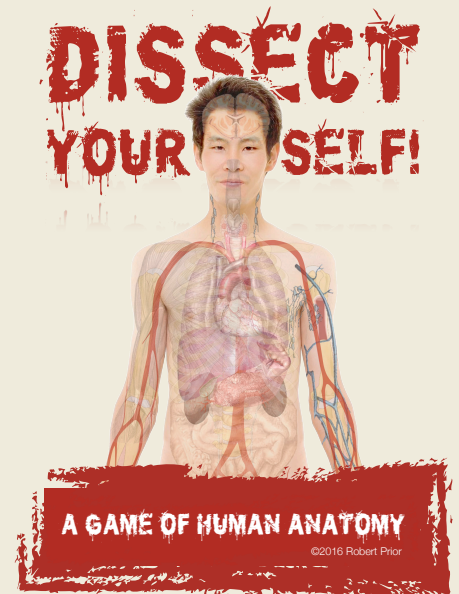
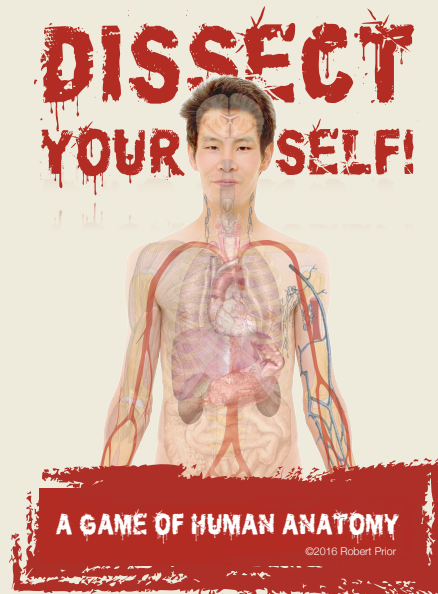
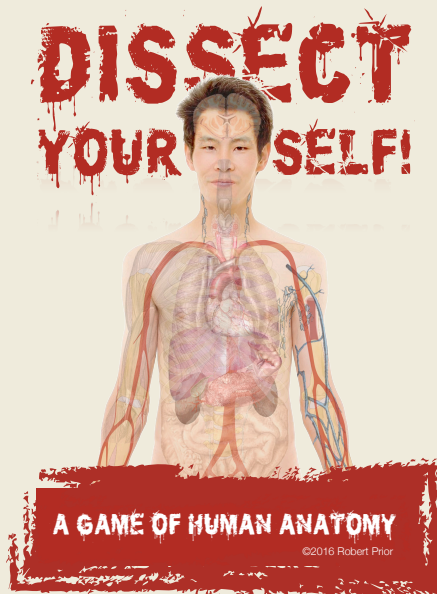
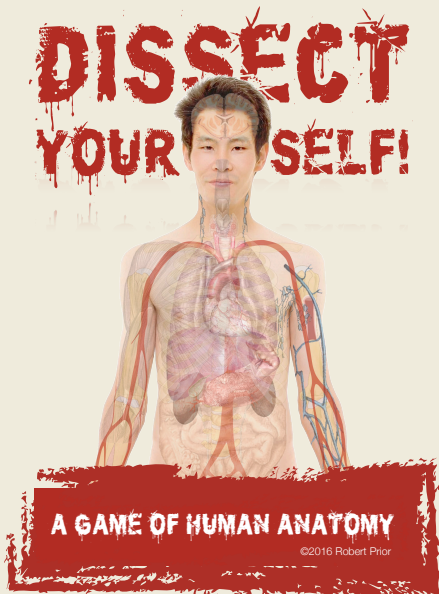
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