Every Body's Human Biology Pre-Assessment

Is My Student Ready?

If your student has shown an interest in how the human body works and is ready to pay attention to a 20 minute lesson, they are ready to start the program.

Is My Student Too Advanced?

You can use the questions below to determine if your student has already gained both the knowledge and the ability to reason that the program teaches. Ask them the questions below and use the rubric to assess their answers

Is My Student Done?

It takes years to learn math or English. Because Dr. Robin teaches how to think scientifically, which is different than how most students are taught, many find they have to repeat the program to get everything out of it. To find out if your child has completed Every Body's Human Biology, ask them the questions below and use the rubric to assess their answers.

Questions to Ask

For each question, ask your student the question in bold. They are unlikely to provide a complete answer with just the first question, but let them try. Then prompt them with the other questions, one at a time in the order provided. The rubric later in this packet will provide you with how to assess your student's answers. It can help to have it in front of you while your student is answering to check off concepts your student might mention.

What would happen to a person with low iron levels?

What would their red blood cells look like? What symptoms would they have? What vitamin is important to have in order to absorb iron?

Why would a child with type 1 diabetes have a piece of cake at a birthday party but their aunt with type 2 diabetes might not?

What is different about the two types of diabetes? What causes each one? Are they treated the same? What does insulin do anyway?

What's the difference between a heart attack and heart failure?

What causes the heart to beat? Why does the heart need blood vessels going to it when it's already filled with blood? What happens if the heart isn't pumping well?

Where do asthma and pneumonia happen in the lungs and why are they treated differently?

What does cartilage have to do with asthma? How do doctors know if pneumonia needs antibiotics or not?

What does each digestive organ do and what would happen if it was removed?

Why is the small intestine so long? Why do we digest our food? Where does each component go?

The Rubric

How to Assess Your Student's Responses

For each topic, check off any concepts they have included in their explanation. The right hand column explains the significance.

Blood	Big Ideas They Should Include	Why?
Mastering	☐ Iron is in hemoglobin, the protein in red blood cells. The iron is what carries oxygen and gives red blood cells their color. ☐ The red blood cells will be small and pale. ☐ The person will have trouble getting oxygen around. Oxygen is used to help the mitochrondria make energy from glucose so the person will have less energy. They will be tired, feel short of breath, get lightheaded, and not feel good.	This shows that a student is able to work logically from basic knowledge about iron and what it does to figure out what a lack of it would cause. Dr. Robin has taught thousands of students around the world and has seen many middle school students reach this level of understanding.
Developing	☐ Iron is used to make red blood cells so they will be less red or maybe not as many ☐ Red blood cells carry oxygen so that might cause problems like feeling short of breath	Often at this level students understand that iron is red and that red blood cells carry oxygen but they can't put together how it's related or what symptoms it might cause.
Beginning	☐ Iron is important to be healthy	At this level, students will often know that iron is important "to be strong" or "to be healthy" but don't have any understanding of why.

Diabetes	Big Ideas They Should Include	Why?
Mastering	☐ Type 2 Diabetes is caused when the person develops insulin resistance and the cells stop responding to insulin. ☐ Insulin opens the channel (door) to let sugar into the cell. So when it doesn't work, the cell doesn't get the sugar and can't make energy in the mitochondria. ☐ Extra sugar stresses out the system and will make the problem worse. An important part of treating type 2 diabetes is to limit sugar intake. ☐ Type 1 diabetes is an autoimmune condition in which a child's immune system attacks and kills the cells in the pancreas that makes insulin. The insulin would work just fine, they just don't have any. So the treatment is to inject insulin. They are otherwise no different than any other kid at the party.	This shows that a student understands what insulin does at the cell and the difference between not having insulin (type 1 diabetes) vs insulin resistance.
Developing	☐ Diabetes has to do with blood sugar so both of them should avoid eating sugary foods.	Often at this level students don't understand the difference.
Beginning	☐ May have heard of it but not sure what diabetes is.	

The Heart	Big Ideas They Should Include	Why?
Mastering	☐ A heart attack is when a blood vessel providing blood to the heart is blocked and the heart cells start dying. ☐ The heart needs blood through blood vessels because inside it's just holding and pumping the blood. The arteries on the outside of the heart are actually delivering blood to all the cells. ☐ The heart beats because of an electrical signal telling it to ☐ Heart failure is when the heart is having trouble pumping the blood ☐ In that case, the blood starts backing up and fluid could back up in places like the legs or lungs. This could cause shortness of breath or swelling.	This shows that a student is able to explain the mechanics of a heart beat--electricity causes the beat and the muscle squeezes the blood out of the heart. They can also explain the impact of not getting blood to the cells of the heart and how that blood gets to the cells. Finally, they can reason through what would happen if blood starts backing up and what symptoms it might cause.
Developing	☐ A heart attack is when a blood vessel that gives blood to the heart gets blocked. This can kill cells. ☐ Not sure what heart failure is. ☐ Can't reason through what would happen ☐ Electricity makes the heart beat.	Usually students understand heart attacks long before they understand heart failure.
Beginning	☐ The heart pumps blood	Students at this level won't understand pathology

The Lungs	Big Ideas They Should Include	Why?
Mastering	☐ Pneumonia is an infection and asthma is a chronic disease. ☐ Pneumonia can be bacterial or viral, which are each treated differently. Either one causes fluid in the alveoli, which makes it hard to breathe. ☐ Bacterial pneumonia is in just one lobe of the lung and viral pneumonia is all over both lungs. Only bacterial pneumonia needs antibiotics. ☐ Asthma happens in the small airways that don't have cartilage around them to hold them open. Instead, smooth muscle will squeeze the airway tight. It's treated with inhalers that open the airways or decrease inflammation.	This shows that a student is able to connect the anatomy with the medical problems and treatment. They understand the logic of each problem and treatment including the difference between bacterial and viral infections.
Developing	☐ Pneumonia is an infection so doctors can do an xray and see that someone needs antibiotics. ☐ Asthma is a chronic disease from tight airways so it's treated with inhalers.	Often at this level students understand the difference between infections and chronic disease but may not be able to relate the anatomy with the condition. They also may not understand the difference between treatment of bacterial and viral infections.
Beginning	☐ I've seen people use inhalers for asthma.	At this level, students will often only understand what they have personally experienced.

Digestive System	Big Ideas They Should Include	Why?
Mastering	☐ Digestion removes nutrition from our food and whatever we can't digest leaves the body as feces. ☐ The teeth/tongue crush the food and mix it with saliva to get it ready for digestion. ☐ This travels down through the esophagus to the stomach. ☐ The stomach uses stomach acid and enzymes to break down food further. We can live without a stomach but would have to eat very small meals. ☐ The small intestine finishes digestion and does nearly all the absorption of nutrients, which are carried around the body in the blood. We need a small intestine to absorb nutrition. ☐ The liver, gallbladder, and pancreas all put things into the small intestine to help with digestion. We have to have a liver to survive. A pancreas does both insulin and pancreatic enzymes. A gallbladder holds bile made by the liver until we need it. ☐ The large intestine dries out the feces and bacteria in the large intestine finish digesting anything we weren't able to. We can live without a large intestine but would have diarrhea all the time. ☐ Anything we can't digest (mostly fiber) will leave the body in the feces.	This shows that a student is able to understand each step and its importance as well as the connection of digestion to the rest of the body.
Developing	☐ May know some or all organs but won't know what every one of them does. ☐ Understands we digest our food to get nutrition.	Students are starting to understand the complexity
Beginning	☐ Understands we digest our food to get nutrition. ☐ Often can't name the organs of digestion.	Very basic understanding

The Results

How to Use This Information

Is My Student Ready?

If your student has shown an interest in how the human body works and is ready to pay attention to a 20 minute lesson, they are ready to start the program.

Is My Student Too Advanced?

If your student is at the "Mastering" level then they are ready for new challenges such as college level or AP Anatomy and Physiology. If your student is getting close to "Mastering" but not there yet, then they are well on their way and should be able to work through the materials in Dr. Robin's School fairly quickly. If you student is anywhere below that, they have a lot to learn! The good news is that Dr. Robin can explain things so that even a young child can understand. So if they are interested, go ahead and get started!

Is My Student Done?

It takes years to learn math or English. Because Dr. Robin teaches how to think scientifically, which is different than how most students are taught, many find they have to repeat the program to get everything out of it. If your student is at the "Mastering" level then they are ready for new challenges such as college level or AP Anatomy and Physiology.

If your child has already worked through the program and can't answer the questions at the mastery level then I'd suggest they take a second or third or fourth trip through and consider the first time to be excellent exposure to the material. We don't expect kids to learn fractions the first time we teach it and then never have to revisit it again. Shouldn't we expect human biology to be even harder? But this next time through, make sure that you're using all the resources available such as the self-grading quizzes, the worksheets including the bonus questions when available, and the Quizlet review. And each week, ask your child to explain what they learned. Not just recite the information. But explain it to you so that you understand it too.

Questions?

You can reach out to Jill Cooper, RN. BSN at hello@docrobinschool.com or schedule an appointment with her to discuss your specific situation and determine what's best for your family!