MedPath Human Biology

Quick Pre-Assessment

This isn’t a test — there are no wrong answers here. This guide is simply meant to help you understand where your child is in their learning journey. Take it one step at a time. You don’t need to finish it all at once, and you don’t have to get everything perfect.

You know your child best, and this is just a tool to support that. You've got this!

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 what the program teaches. Ask them the questions below and use the rubric to assess their answers.

Is My Student Done?

To find out if your child has completed MedPath Human Biology and is ready for our upcoming MedPath Scholars program, use the **questions and rubric below** to assess their current understanding.

It takes years to learn math or English — and the same is true for understanding the human body. Because Dr. Robin teaches students to think scientifically (a skill that develops over time), many students benefit from going through the program more than once.

Questions to Ask

Ask your student the questions below.

- Begin with the questions in bold. They are unlikely to provide a complete answer with just the first, bolded question, but let them try.
- Then, prompt them with the other questions, one at a time in the order provided.
- The rubric will provide you with how to assess your student's answers. Check off any concepts your student has included in their explanation. The right hand column explains the significance.

Topic 1 of 5

Blood

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?

Level	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 there may not be 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 they don’t have any understanding of why.

Ready to Test Out of MedPath and into MedPath Scholars:

"Iron is used to make hemoglobin. Low iron means the body won’t be able to make enough hemoglobin for the red blood cells. Hemoglobin is the protein that actually carries oxygen. Without enough iron, the red blood cells will be smaller and paler, and the body can’t get oxygen around as well. Oxygen is used with glucose by the mitochrondria to make energy for the cells. So the mitochondria can’t make enough energy. The person will really tired, short of breath, weak, and dizzy. They may have trouble using cells that need more oxygen such as muscles and brain cells.”

👉 This student is reasoning through the science at a clinical level. They can apply knowledge across systems and would be ready to move on to **MedPath Scholars** or advanced courses.

What if your student is between levels 2-3? Most students need to do each level at least twice. If your student is beyond the level 2 example but not yet ready to test out of MedPath, that is totally normal! If you student is new to MedPath, they will generally only be ready to start initially in level 3 if they are in **high school** and often not then, even if they are highly gifted. The reason is that most students have not yet learned to think scientifically. There is also significantly more work to level 4 (many more lessons plus labs and cases). But don’t worry about choosing the right level! You can easily switch between levels, if needed.

Ready to Test Out of Level 2, Ready to Start Level 3:

"Iron helps make red blood cells, and those carry oxygen. If someone doesn’t have enough iron, they might get short of breath because there’s not enough oxygen moving around."

👉 This student connects iron to red blood cells and oxygen but doesn’t fully explain the mechanism. They’ve completed the **Developing** level and are ready for the deeper reasoning in **Level 3**.

When should you start directly in level 2? If your student is just starting with MedPath, they are typically ready for level 2 if they are in **5th-8th grade** and wondering in depth about what is actually happening in the body and why things go wrong. How do the nutrients your brain needs get from your plate to your brain? What is the difference between type 1 and type 2 diabetes? But don't worry about choosing the right level! You can easily switch between levels, if needed.

Ready to Test Out of Level 1, Ready to Start Level 2:

"Iron is important for blood. Without enough iron, people might feel sick or weak."

👉 This student is starting to go beyond just "iron is healthy" into connecting iron to blood function. They're ready for **Level 2**, but not ready for Level 3 yet.

When should you start directly in level 1? If your student is just starting with MedPath, they will usually start in level 1 if they are in **2nd-4th grade** and ready to start learning more about how the body actually works. But don't worry about choosing the right level! You can easily switch between levels, if needed.

Getting Started, Ready to Start Level 1:

"Iron is important because it makes you healthy and strong."

👉 This student is at the entry point, with a very basic idea but no explanation of why. They are ready for **Level 1** of MedPath, where the foundation will be built step by step.

What if your child is in K-3rd? If your child is too young to sit through a detailed 20-25 minute physiology lesson, then you should start in the primer level to introduce them to the beauty of human anatomy and help them start wondering about what's really happening in there. But don't worry about choosing the right level! You can easily switch between levels, if needed.

Topic 2 of 5

Diabetes

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?

Level	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 level 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	☐ They may have heard of it but are not sure what diabetes is.	

Ready to Test Out of MedPath and into MedPath Scholars:

"Type 1 diabetes happens when the immune system attacks the pancreas, so the body can't make insulin anymore. Without insulin, sugar can't get into the cells, which means the cells can't make energy. That's why a child with type 1 can still have cake, as long as they take insulin, because the insulin works fine. Type 2 is different — the body still makes insulin, but the cells don't respond to it. That's called insulin resistance. Eating too much sugar can make it worse, so that's why someone with type 2 might need to limit sweets. The treatments are totally different because the problems are different."

👉 This student understands insulin at the cell level, the difference between Type 1 and Type 2, and the logic behind treatment. They're ready to move into **MedPath Scholars**.

What if your student is between levels 2-3? Most students need to do each level at least twice. If your student is beyond the level 2 example but not yet ready to test out of MedPath, that is totally normal! If you student is new to MedPath, they will generally only be ready to start initially in level 3 if they are in **high school** and often not then, even if they are highly gifted. The reason is that most students have not yet learned to think scientifically. There is also significantly more work to level 4 (many more lessons plus labs and cases). But don't worry about choosing the right level! You can easily switch between levels, if needed.

Ready to Test Out of Level 2, Ready to Start Level 3:

"Diabetes is about blood sugar. In type 1, kids don't make insulin, so they need to take it. In type 2, the body doesn't handle sugar as well, so they shouldn't eat too much sugar. That's why the aunt might not eat cake."

👉 This student sees a distinction between the two types but hasn't tied it to the deeper cellular process. They're ready to move into **Level 3**, where that depth will be taught.

When should you start directly in level 2? If your student is just starting with MedPath,

they are typically ready for level 2 if they are in **5th-8th grade** and wondering in depth about what is actually happening in the body and why things go wrong. How do the nutrients your brain needs get from your plate to your brain? What is the difference between type 1 and type 2 diabetes? But don't worry about choosing the right level! You can easily switch between levels, if needed.

Ready to Test Out of Level 1, Ready to Start Level 2:

"Diabetes is when people have trouble with sugar so you have to be careful with sweets."

👉 This student has the general idea but lumps both types together. They're ready for **Level 2**, which will help them sort out the differences.

When should you start directly in level 1? If your student is just starting with MedPath, they will usually start in level 1 if they are in **2nd-4th grade** and ready to start learning more about how the body actually works. But don't worry about choosing the right level! You can easily switch between levels, if needed.

Getting Started, Ready for Level 1:

"I think diabetes is when people can't have sugar."

👉 This student has only heard the word "diabetes" but doesn't know what it means. They're ready to begin with **Level 1** to build a foundation.

What if your child is in K-3rd? If your child is too young to sit through a detailed 20-25 minute physiology lesson, then you should start in the primer level to introduce them to the beauty of human anatomy and help them start wondering about what's really happening in there. But don't worry about choosing the right level! You can easily switch between levels, if needed.

Topic 3 of 5

The Heart

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?

Level	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 lungs or legs. 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. ☐ Electricity makes the heart beat. ☐ They can't reason through what would happen during a heart attack. ☐ They are not sure of what heart failure is.	Usually, students understand heart attacks long before they understand heart failure.
Beginning	☐ The heart pumps blood.	Students at this level won't understand pathology.

Ready to Test Out of MedPath and into MedPath Scholars:

"A heart attack happens when one of the arteries that brings blood to the heart muscle gets blocked. The heart still has blood inside it, but that blood is just passing through — the cells of the heart muscle need their own supply through the coronary arteries. If the blockage isn't fixed, the cells start to die. Heart failure is different — it means the heart can't pump well enough. Then blood backs up, which can cause fluid in the lungs (so the person feels short of breath) or swelling in the legs. The heartbeat itself comes from an electrical signal, which is why the heart keeps beating even outside the body for a short time."

👉 This student shows clear reasoning about mechanics, causes, and effects. They're ready for **MedPath Scholars**.

What if your student is between levels 2-3? Most students need to do each level at least twice. If your student is beyond the level 2 example but not yet ready to test out of MedPath, that is totally normal! If you student is new to MedPath, they will generally only be ready to start initially in level 3 if they are in **high school** and often not then, even if they are highly gifted. The reason is that most students have not yet learned to think scientifically. There is also significantly more work to level 4 (many more lessons plus labs and cases). But don't worry about choosing the right level! You can easily switch between levels, if needed.

Ready to Test Out of Level 2, Ready to Start Level 3:

"A heart attack is when a blood vessel in the heart gets blocked and some cells die. The heart beats because of electricity. Heart failure is when that fails to happen."

👉 This student has some pieces (heart attack, electricity) but is missing a lot of details. They're ready to step into **Level 3** for more depth.

When should you start directly in level 2? If your student is just starting with MedPath, they are typically ready for level 2 if they are in **5th-8th grade** and wondering in depth about what is actually happening in the body and why things go wrong. How do the nutrients your brain needs get from your plate to your brain? What is the difference between type 1 and type 2 diabetes? But don't worry about choosing the right level! You can easily switch between levels, if needed.

Ready to Test Out of Level 1, Ready to Start Level 2:

"The heart pumps blood around your body. A heart attack is something bad that happens when it can't do that."

👉 This student knows the heart pumps blood and that heart attacks are serious but doesn't understand why. They're ready for **Level 2** to start filling in those gaps.

When should you start directly in level 1? If your student is just starting with MedPath, they will usually start in level 1 if they are in **2nd-4th grade** and ready to start learning more about how the body actually works. But don't worry about choosing the right level! You can easily switch between levels, if needed.

Getting Started, Ready for Level 1:

"The heart is for pumping blood. A heart attack sounds bad."

👉 This student is at the most basic level and ready to begin with **Level 1** content.

What if your child is in K-3rd? If your child is too young to sit through a detailed 20-25 minute physiology lesson, then you should start in the primer level to introduce them to the beauty of human anatomy and help them start wondering about what's really happening in there. But don't worry about choosing the right level! You can easily switch between levels, if needed.

Topic 4 of 5

The Lungs

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?

Level	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 x-ray and see that someone needs antibiotics.	Often at this level students understand the difference between

	☐ Asthma is a chronic disease from tight airways so it's treated with inhalers.	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	☐ They have seen people use inhalers for asthma.	At this level, students will often only understand what they have personally experienced.

Ready to Test Out of MedPath and into MedPath Scholars:

"Asthma and pneumonia both make it hard to breathe, but they happen in different places. Asthma is in the small airways, which don't have cartilage to hold them open. The muscles there can squeeze tight, and that's why inhalers work — they relax the muscle or reduce inflammation. Pneumonia is an infection in the alveoli, where gas exchange happens. Viral pneumonia is spread through both lungs, but bacterial pneumonia usually stays in one area. Only bacterial pneumonia needs antibiotics. Both fill the alveoli with fluid, which makes oxygen exchange harder."

👉 This student connects **anatomy + disease + treatment** and shows deep reasoning. They're ready for **MedPath Scholars**.

What if your student is between levels 2-3? Most students need to do each level at least twice. If your student is beyond the level 2 example but not yet ready to test out of MedPath, that is totally normal! If you student is new to MedPath, they will generally only be ready to start initially in level 3 if they are in **high school** and often not then, even if they are highly gifted. The reason is that most students have not yet learned to think scientifically. There is also significantly more work to level 4 (many more lessons plus labs and cases). But don't worry about choosing the right level! You can easily switch between levels, if needed.

Ready to Test Out of Level 2, Ready to Start Level 3:

"Asthma is when the airways get tight, so you use an inhaler. Pneumonia is an infection, and doctors can see it on an x-ray and sometimes give antibiotics."

👉 This student understands the basic difference between infection and chronic disease, but not yet the deeper anatomy or treatment logic. They're ready for **Level 3**.

When should you start directly in level 2? If your student is just starting with MedPath, they are typically ready for level 2 if they are in **5th-8th grade** and wondering in depth about what is actually happening in the body and why things go wrong. How do the nutrients your brain needs get from your plate to your brain? What is the difference between type 1 and type 2 diabetes? But don't worry about choosing the right level! You can easily switch between levels, if needed.

Ready to Test Out of Level 1, Ready to Start Level 2:

"I think asthma makes it hard to breathe so maybe they are both about trouble breathing?"

👉 This student knows at least one of the conditions affects the lungs but doesn't yet distinguish infection from airway tightening. They're ready for **Level 2**.

When should you start directly in level 1? If your student is just starting with MedPath, they will usually start in level 1 if they are in **2nd-4th grade** and ready to start learning more about how the body actually works. But don't worry about choosing the right level! You can easily switch between levels, if needed.

Getting Started, Ready for Level 1:

"I have a friend with asthma who has trouble running." or "I had pneumonia when I was a baby and was really sick."

👉 This student describes what they've *seen* but doesn't understand the science yet. They're ready for **Level 1**.

What if your child is in K-3rd? If your child is too young to sit through a detailed 20-25 minute physiology lesson, then you should start in the primer level to introduce them to the beauty of human anatomy and help them start wondering about what's really happening. But don't worry about choosing the right level! You can easily switch between levels, if needed.

Topic 5 of 5

Digestive System

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?

Level	Big Ideas They Should Include	Why?
Mastering	☐ Digestion removes nutrition from our food. 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. ☐ The food travels down through the esophagus to the stomach. ☐ The stomach uses stomach acid and enzymes to further break down food. 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 produces both insulin and pancreatic enzymes. A gallbladder holds bile made by the liver until we need it.	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.

	☐ The large intestine dries out the feces. Bacteria in the large intestine finish digesting anything the stomach and small intestine wasn'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.	
Developing	☐ They may know some or all organs but won't necessarily 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.

Ready to Test Out of MedPath and into MedPath Scholars:

"Digestion breaks food down so the nutrients can go into the blood and fuel the body. The teeth and tongue crush the food and mix it with saliva. The stomach uses acid and enzymes to break it down more — you can live without a stomach, but you'd have to eat tiny meals. The small intestine finishes digestion and absorbs almost all the nutrients. Without it, you wouldn't be able to get any of the nutrients you need. The pancreas, liver, and gallbladder add things to help with digestion. The liver is essential because it processes nutrients and makes bile from recycled red blood cells. Without that, you couldn't digest and absorb fat. It also cleans your blood. There's no alternative to a liver so you can't live without it. The gallbladder stores bile, but you can live without it. The pancreas makes enzymes and insulin. You really need those but can also take them as medicine. The large intestine absorbs water and has bacteria that finish digestion — you can live without it, but you'd have constant diarrhea. Whatever can't be digested leaves the body as feces."

👉 This student can explain each organ's role, what happens if it's removed, and why digestion matters. They're ready for **MedPath Scholars**.

What if your student is between levels 2-3? Most students need to do each level at least twice. If your student is beyond the level 2 example but not yet ready to test out of MedPath, that is totally normal! If you student is new to MedPath, they will generally only be ready to start initially in level 3 if they are in **high school** and often not then, even if they are highly gifted. The reason is that most students have not yet learned to think scientifically. There is also significantly more work to level 4 (many more lessons plus labs and cases). But don't worry about choosing the right level! You can easily switch between levels, if needed.

Ready to Test Out of Level 2, Ready to Start Level 3:

"Digestion is how we get nutrition from food. The stomach breaks food down, and the small intestine absorbs the nutrition, which goes into our blood. The large intestine gets the water out. Without the stomach, the food wouldn't be as ready to digest when it got to the small intestine and it would be hard to eat a full mean. Without the small intestine, we couldn't get what we need from food. Your liver helps clean the blood so you'd get poisoned without it. Without a large intestine, you'd get diarrhea."

👉 This student knows the big steps and purpose but not the full organ-by-organ detail. They're ready for **Level 3**.

When should you start directly in level 2? If your student is just starting with MedPath, they are typically ready for level 2 if they are in **5th-8th grade** and wondering in depth about what is actually happening in the body and why things go wrong. How do the nutrients your brain needs get from your plate to your brain? What is the difference between type 1 and type 2 diabetes? But don't worry about choosing the right level! You can easily switch between levels, if needed.

Ready to Test Out of Level 1, Ready to Start Level 2:

We digest food so we can get energy and nutrition. The stomach and intestines help with that so without them you couldn't get the energy and nutrition you need."

👉 This student understands the purpose of digestion but can't yet explain how the all the organs fit together. They're ready for **Level 2**.

When should you start directly in level 1? If your student is just starting with MedPath, they will usually start in level 1 if they are in **2nd-4th grade** and ready to start learning more about how the body actually works. But don't worry about choosing the right level! You can easily switch between levels, if needed.

Getting Started, Ready for Level 1:

"Your stomach digests your food so you need it."

👉 This student is at the most basic level — they know digestion happens but not why or how. They're ready for **Level 1**.

What if your child is in K-3rd? If your child is too young to sit through a detailed 20-25 minute physiology lesson, then you should start in the primer level to introduce them to the beauty of human anatomy and help them start wondering about what's really happening in there. But don't worry about choosing the right level! You can easily switch between levels, if needed.

The Results

How to Use This Information

If your student has completed nearly all the concepts at the “Mastering” level then they are ready for new challenges such as our MedPath Scholars program, which focuses on pathophysiology and other medical topics, or college level or AP Anatomy and Physiology. We’d recommend doing an evaluation with Nurse Jill to ensure you’re ready for Scholars.

If your student is getting close to checking off everything in “Mastering” but not there yet, then they are well on their way and should be able to work through the materials in level 3 of Dr. Robin’s School fairly quickly. They may only need one final trip through level 3 before doing their final evaluation.

If your student is anywhere below that level, they have a lot to learn! The good news is that Dr. Robin can explain things so that even a young child can understand.

Make sure to read through all the information with the examples. But as a general rule:

- If they have checked off everything in “Beginning” then they are ready for level 1 of MedPath
- If they have checked off everything in “Developing” then they are ready for level 2 of MedPath
- If they have started on checking off concepts in “Mastering” and are ready for the increased workload and complexity, then they are ready for level 3 of MedPath

If your child has already completed level 3 of MedPath but isn't yet answering at the mastery level, that's completely normal. Think of their first run-through as a strong introduction — just like we don't expect kids to master fractions on their first try, it takes time to fully understand the human body.

On the second (or even third or fourth) time through, **be sure to make full use of the available tools**: self-grading quizzes, workbook (especially the challenge questions), and Quizlet reviews. These resources are designed to deepen understanding each time they're used.

Each week, **ask your child to explain what they've learned** — not just repeat facts, but actually walk you through the concepts in their own words. If they can help *you* understand it, that's a good sign they're building real comprehension.

Also, **make sure they've completed all the Clinical Application Cases and submitted their answers to Jill**. She tailors her feedback to the level of work submitted — if it looks basic, she'll assume that reflects the student's ability and be gentle with them. But if your child is capable of deeper thinking, encourage them to show it. In return, they'll get more detailed, meaningful feedback to help them grow.

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!