>> A terrible – that's just a terrible, terrible [inaudible]. That's almost as bad as mine. OK. So here is what we're going to – you're responsible for seeing in lab, for our lab practical with tissues and again the tissues that we see I'm going to follow right long in your lab book, so please [inaudible]. Think most of the information that I'll be saying to you can be found in the explanation of the tissue. What you should know before we start is you're looking at this Page 12 is that it starts – each section starts with a Roman numeral and bold type, giving us the general tissue name. So on Page 12, at the top, Roman number 1, epithelial tissue. And that gives you some general information that actually we discussed earlier this morning, and then I order the tissues that we'll be seeing. So [inaudible] kind of follow along with me if you will. We'll just do epithelial first, and then we'll do [inaudible] section. So A, B, C, D is on Page 13, and then turn the page, Page 14 E, there are like five epithelia that I will be responsible for knowing in lab. The same five in this instance that we discussed in lecture. And so each of those [inaudible] general characteristics underneath the type of epithelium again, something that we have discussed, and possible locations, again, that we have discussed, and then what you'll see under that is if you will be responsible for knowing different preparations of the issue. And so in the case of the epithelial tissue, it tells you that you should look at a [inaudible] and a whole-mount preparation. So I'm going to point those out as we look at them because what does that mean on our lab practical. You might see either of those preparations or both, and you should be able to name it no matter how it's prepared because the preparation is going to look a little different. Now, will have to identify on the [inaudible] would I have to say this is simple squamous epithelium whole mount. Now, if you see a whole mount of simple squamous epithelium and ask to name it, all you have to say is simple squamous epithelium. And we'll talk about this again in many, many, many times [inaudible] just some things to note as you're moving through here today. So I'll try to remember to point out of there are different preparations you should see, and but if you're following along on the page we're looking at, you should be able to see that as well. Again, colored pencils are going to be nice when you're working on this on your own, and from now on, I'm sorry I didn't mention this before, you might want to have a highlighter or two. So that if there are things that I'm mentioning on the page that you want to remember, you might want to highlight them. So if you have a highlighter [inaudible] close by wherever you are, you might want to highlight where it says exam [inaudible] and [inaudible] preparation just so that you remember that there – it's more than one way that this tissue has been prepared that you're responsible for. If you don't have it now, you can do that later. All right. So here we go, a little review. Epithelium also called epithelial tissue. We're remembering that specific types of tissue are identified by the shape of the cell and its layering. So our [inaudible] again, the shape is going to be either squamous or cuboidal or columnar or transitional. And the layering is either going to be simple, which means one layer of the cells, or stratified, meaning two or more. The general – remember, we're general because we've talked about some very specific locations in our lecture, but in general, we would find epithelium covering something lining something. So like

covering our outside of our body or lining structures inside of our body. And general functions and these are general because all epithelia don't do all of these. We talked very specifically about which epithelia do what jobs. But epithelia will bring back diffusion or secretion, simple squamous most likely. Absorption – most likely – and secretion, simple cuboidal as well, absorption, simple columnar, protection, stratified squamous, expansion, transitional. So those words are general functions, but we gave specific functions for each of those tissue types. We've seen this already. And this is where we're highlighting that we should look at a teased or whole-mount preparation. So this is simple squamous epithelium whole mount. And, again, the tightly connected cells, little to intracellular matrix, basilar nuclei, one layer of thin, flat cells presented in a whole-mount versus we take that whole mount and we pull apart the cells. I'm also going to show you some different magnifications. This is what we would see if we were actually looking under a microscope. So under the microscope, we would look for these cells in a first [inaudible] magnification. And then this a – that was a low magnification. And then high magnification. So we're seeing, right, the scattered, thin flat cells because they've been pulled apart. [Inaudible] that are still attached to each other. And this is that same slide in a higher magnification. Thin, flat cells, squamous shape, and one cell layer. So this is a tease preparation. So the two ways I'd see simple squamous epithelium whole mount or teased. Highlight it if you have your highlighter. This is how we would see it actually in the body, though, which we looked at when we looked at lecture we saw, all right, here's the squamous cells. One thin-flat cell mixed with thin-flat cell mixed with thin-flat cell mixed with thin-flat cell surrounding an opening. In this case, this is the kidney, in the [inaudible] of the kidney, where filtration takes place. And this is actually the glomerulus, which is also just a – kind of a ball of capillaries which are made of simple squamous epithelium. So this is how we might see in the body surrounding one layer surrounding a space. Stratified more than one layer. Squamous still thin and flat. We're always going to look for an outside space. And so I'm seeing, right, a thin-flat, thin-flat, thin-flat, thin-flat, thin-flat, thin-flat like bricks in a wall – bricks in a wall. And that identifying feature of lots of flaky dead cells coming off the edge. So when I see that thin-flat, thin-flat layers, I see a space. I see cells coming off of the edge, stratified squamous epithelium. Where do I see this? Places where [inaudible] abrasion like the surface of the skin, the inside [inaudible] mouth, the esophagus, the vagina are places that we talked about. This was, so, again, just went through this. This is a low magnification, and this is a high magnification. So I can really see the detail of the cells. Thin-flat, thin-flat, thin-flat, in rows, here's the open space, and here are those dead, dry, dehydrated flakey cells. Stratified squamous epithelium. Now sometimes the preparation is not so good. And I just want to show you this so you know that if you were seeing this under the microscope, and you pulled a slide to look at, you might get a slide that you put on, you know, what the heck is that? I don't know what that is. And so you won't see anything like this from me on the test. I'm going to give you good examples. But if I were to see something like this in our microscope and I had no idea what I was looking at, and I was asking you because this is a different

tissue, and I point to this tissue, and I said, what, name that tissue. What could I say about it that I know that might help me? And so I see that it does have definite layering. Here's a basement membrane. And here's some dehydrated flakey cells off the outside edge. So even though it's not a good preparation, I might get a stratified squamous epithelium. Simple cuboidal. One layer, cube-shaped, epithelium. This is scanning objective, low-power objective, high-power objective. So the high magnification is where I am going to see the best detail, and I'm going to see cube, cube, cube, cube, cube – just one layer of cubes around an option. Cube, cube, cube, cube, cube around an opening. Where do I find simple cuboidal epithelium? In glands. So these cells produce a secretion that they release into the opening that is either directly attached to a capillary so that the secretion called a hormone can go into the vascular system, or this connected to a dot that leads to a passageway. So either the skin – the surface of the skin or maybe the inside of the mouth or inside of the digestive tract. Simple, one layer columnar. Three times the height as the width. Three to four times the height as the width. So some things we want to notice, large, oval nucleus – large oval nucleus. They stand like centuries in a column. And so now let's note in our lab book that simple columnar epithelia always have these accessory cells associated with it called goblet cells. And goblet cells release mucous. And goblet cells releasing mucous because these cells, simple columnar epithelium, are found in the digestive tract or respiratory tract. And what does mucous do? Mucous brings about moisture for those tracks that are open to the outside of the body, and it also traps debris and pathogens and blocks. Things like acid and digestive enzymes from destroying the cell. So we're always going to be goblet cells. The simple columnar epithelium. And this epithelia can also [inaudible] cilia. A lot of epithelial in the respiratory tract have these little teeny, tiny cilia. On the outside edge. And here's a better view of the goblet cells. Goblet cell. Goblet cell. This is all mucous. So these goblet cells releasing that mucous to the outside surface to protect the epithelial cells. All right [inaudible]. Are there stratified columnar? Yes. Are there stratified cuboidal? Yes. But we're not talking about it. What we sometimes see, though, because what else do we know about epithelium? Here's the outside edge. It's always undergoing mitosis. So sometimes, if we look at an epithelium, it might look like it's layered. This kind of looks layered to me. This kind of looks layered to me, but it's not layered. This is the cell that is undergoing mitosis underneath and pushing this old cell out. So will I ever ask you about stratified columnar epithelium? No. This is actually called, just so you know, pseudostratified, meaning false stratification because of this appearance of layering during mitosis. So we will encounter pseudostratified columnar epithelium down the road. But remember, it's not actually layered. It's just undergoing mitosis. Lastly, transitional epithelium, this is a low magnification versus a high magnification. Same slide. Here's my open space. And we have that irregular layering, not nice straight rows, and very different shapes to the outside edge versus deeper, more flat, more teardrop-shaped. You will have a little bit of flaking on transitional because it is layered, and it is being replaced, but it's certainly not the same amount of that flaking that you would see in stratified columnar, or, excuse me, stratified

squamous. So let's say this, I have five epithelia I need to know in lab, simple squamous, stratified squamous, simple cuboidal, simply columnar, transitional epithelia. And only two of them are layered, stratified squamous epithelium, and transitional epithelium. So the only two that I might confuse might be those two. I need to look at those if I am having trouble back to back to back several times so that I am seeing the details that I'm talking about to help me identify them. You might see a slide that has a different stain. This has a methylene blue stain. This has a red stain. Still, though, what am I looking at? Not the color but the open space and the layered cells. The other thing that I might see other tissue, right, this is not epithelium. This is adipose connective tissue. These are blood vessels. So I see a lot of things going on, as you would, on any slide. You would see multiple tissue types. But what am I going to do? I'm going to bring it in. So if I were in class, I might focus, and then I get over here, and I'm going well that doesn't look like epithelium. So I would need to move the slide over so that I'm looking at the epithelium. Open space. Layered cells. Where do I find this? In the urinary bladder and the ureters. All right. Now [inaudible] the tissues we have not yet talked about much here as for connective. So we're still following along in our lab book. And we're starting connective tissues on Page 14. And so here's what we're going to – this will all be review now when we talk about this in lecture next Tuesday. So here is what all connective tissues have. Connective tissues, of course, have cells because they are tissues. And the difference here is that every connected tissue has a different name of a cell. And so here's some of the cells that we're going to encounter within connective tissue. So I will point that out to you. It's also in your lab book telling you what the cells are called. So now I have a little bit more information on connective tissues because all of the cells don't have the same name. Almost all of, there are a couple of exceptions, connective tissues have some fibers. The connective tissues we're going to see, we will be identifying collagen fibers and lasting fibers. There is another – there are other connective tissues that have a third type of fiber called reticular fibers, and we'll talk about those in lecture, but we don't see [inaudible] connective tissues in lab. And all connective tissues have what's called a ground substance which surrounds the cells and the fibers. And it's primarily made of water, right? Here's some chemical compounds that I might need to identify for a test. So a ground substance is going to be primarily water with added protein and carbohydrates, and salt. So those are – that's a chemical makeup of ground substances, and we'll be more specific in lecture. But just a way to introduce this to you today. General, general, general – for teach of the connective tissues, which there are several, we will know the specific functions. What do connective tissues do? They connect. So they'll find some things today, or they'll form padding in between structures, or they'll give us structure framework. It might protect in some way. Some of them specialize – deliver things, and some specialize – store things. So as we talk about them, these are just general terms, we'll talk about specific functions. So in order, we're going to start with areolar connective tissue. We've talked about this one already. This is the connective tissue that, along with epithelia, help to form membranes, and so areolar connective tissue, this is a low magnification, and the

green arrows here are pointing out the fibers. So what do we need to know, this is all in your lab book, but let's just mention it here. Areolar connective tissue, the cells are called fibrocytes. If they are immature and producing a tissue, they're called fibroblasts, and we'll make that – we'll identify the difference in lecture. The fibers that are pointed out here are these kind of pink, thick fibers are the collagen fibers, and the thin hair-like fibers are lasting fibers. So real or connective tissue has both elastin and collagen fibers, and they're described as being scattered because they have no particular arrangement. There are another couple of cells in areolar connective tissue, but we can't see them under our microscopes, so you wouldn't have to identify them. They're called mast cells and macrophages, which we're seeing on the diagram at the bottom of Page 14. We'll talk about both the functions of these in lectures. Just today, mostly want to introduce these issues so that you know what you're looking at. And this is areolar connective tissue on high magnification. So here, these are nuclei of those fibrocytes, this is collagen fibers, thin elastin fibers, and in between that's not – that is space, but it's filled with ground substance. Areolar connective tissue is called loose connective tissues, so the ground substance is kind of watery substance – mostly water, again, carbohydrates, some proteins, and salts. Where do I find areolar connective tissue? Again, as you're looking at your lab book, it gives us some locations. So we're going to find areolar connective tissue attaching to skin to underlying tissues like muscle, and it will also fill spaces in between organs so that it has some binding and [inaudible] capabilities. Adipose is a connective tissue. Adipose means fat. So, again, if I focus in on an adipose connective tissue slide, if I focus I the wrong place, I might be focused over here, and here are those blood vessels again. This is an artery. Over here is vein, and they're filled with blood. I need to be over here because that's adipose connective tissue. And so adipose connective tissue cells have a special name. They're called adipose sides, and they're filled with lipid. And because they filled with lipid, all the internal organelles get pushed to the inside of the cell membrane. So the only one we can actually see would be a nucleus. All the other organelles are there, they just pushed and small, so we can't see them. And this is one of two connective tissues that do not have fibers. They don't have collagen. The adipose doesn't have collagen or elastin, or reticular fibers. It's called non-fibrous. And, again, where do we find adipose connective tissue? If you're looking at your, excuse me, if you're looking at your lab book, we're going to find it under the skin. We know that we see that within skeletal muscle. It's going to be inside of our long bones. And the job is to store energy. So, again, to write all of this because we're going to talk about it in lecture. And just so you know. We're now onto cartilages, which there are three. The first is hyaline cartilage. This is a low magnification of hyaline cartilage and a high magnification. Here's what we're going to see, another new cell type. So here are the cells. The cells in cartilage are called chondro. The word chondro, side note, always means cartilage. So chondrocytes are the cells we would find in the cartilage. They're often clumped in groups of three or four like we see here. And they're always found in a space – here's the cell, a space called [inaudible], which means [inaudible]. And they are far apart from each other,

right? Look at all this. Remember epithelium. The cells were attached, and you couldn't see anything in between the cells, but all of this in between the cells are ground substance. And the ground substance contains, right, it's made up of the chemicals we talked about, but it also contains the collagen fibers that we find in hyaline cartilage. So we can't – they aren't visible to us because they are very – they're tightly packed. They're parallel in hyaline cartilage connected tissue. And so hyaline cartilage connective tissue, some different locations that you're seeing in your lab book, they help connect the ribs to the sternum. There are at the end. There's a thin layer of hyaline cartilage at the end of the long bones because hyaline cartilage, besides connecting, will provide [inaudible]. So, again, just real quick information, and we'll talk about it in more detail in lecture. Again, different preparation, methylene blue. Probably not a great preparation. If you were in lab and see these different preparations, I'm going to always – if I'm asking you a question, show you a good preparation. Elastic cartilages are a second type of cartilage. Another thing to point out in both hyaline and elastic cartilage. Both hyaline and elastic cartilage have an outside covering called an perichondrium. Peri, it means surrounding, chrondrium means cartilage. So surround in the cartilage is a membrane called the perichondrium. We see this in hyaline cartilage as well. So this is low magnification. If I increase the magnification, what am I going to see? Again, these are still chondrocytes. It's still cartilage. Clunked chondrocytes, two, or three, or four clumped together in a space again called a lacunar [phonetic]. But in between the cells in the ground substance, I see fibers – dark, hair-like, elastin fibers. So these will be my identifying feature for elastic cartilage. Here's that perichondrium again. If we'll looking on Page 16, we're seeing that some places that we would find elastic cartilage, elastin fibers do just that. They're elastic. That means they can be stretched. And when they are no longer being stretched, they go back to the their original shape, like around the band. So we find that in places for structural support like the external ear. That's why we can bend our ear down, and then when let go of our ear, it bounces back into its original place and shape. We also see elastic cartilage in the epiglottis and auditory tubes, and we'll talk about those as we encounter them. Our last type of cartilage is fibrocartilage. Very different look. Fibrocartilage. So this is a low magnification. Let's increase the magnification. So these are still chondrocytes but look how much stronger they are. So they're small chondrocytes still in a lacunar, still sometimes clumped in groups of two maybe, but definitely fanned – even though it's a wavy line [inaudible], if I connect those they're in a line. And the identifying feature here besides the small cells, look at the fibers. See how the fibers look like they're in a wave? These wavy collagen fibers are the identifying – it also causes the whole tissue to kind of wave. Wavy collagen fibers. Identifying feature of fibrocartilage. So there is a red stain that we might see and a blue stain. And so [inaudible] detail, I'm seeing small cells, small cells kind of lined up, small cells lined up, but the identified feature – wavy collagen fibers. Where might I see fibrocartilage? Let's see fibrocartilage – fibrocartilage always occurs as a pad – a thick pad. So it's going to be in-between – usually bones where I have a lot of impact. So I [inaudible] find it in between the bodies of my vertebrate,

a little pad, right? My discs. Those are fibrocartilage. I'm going to find it in my knee – menisci or fibrocartilage, and I'll find it in my shoulder. [Inaudible] find it connecting the bone with my pubis in my pelvic girdle. Fibrocartilage. The next – the rest of the tissues I'm going to present to you we'll look at a little bit more briefly, and that's because when we talk about these tissues in the [inaudible] that they're found in, we'll talk about it in much greater detail. So here's bone – a connective tissue. In scanning, low, and high magnification. I want to go back to low magnification for a second. I'm going to point out, right, we're looking at this now on the top of Page 17, and we're seeing a single one of these structures, which is called an osteon. And this is compact bone in particular. So I have another type of bone called spongy, and it would not look like this in a microscope. So compact bone microscopically are grouped together in these osteons. And so no increase the magnification, look at a couple of osteons. So what we're seeing on each osteon is a large space. Now I want you to look at Page 17. And this is true of all of the diagrams we've so far. If there's a diagram with [inaudible] line giving you information about the names of the structures that you're seeing, that would be a question on [inaudible] practical. That is, I show you this picture, a bone. First part of the question is, name this tissue, and you're going to say bone connective. And then I might have an arrow [sound effect]. And Part B, name this opening. And you can say, looking at your diagram, [inaudible] canal. Or I might point out this space, which is, again, called a lacunar. A lacunae in any connective tissue of where the cells are found. So I can't see the cell here, but this is where the osteocytes would be located in these lacunar. Lacunae singular with an E at the end, Lacuna plural. The cracks are called canaliculi. And these are what we call concentric circles, right, circle upon circle like a tree trunk, which are the layers. These are layers of bone tissue, ground substance, and they're called lamellae. Lamella is a layer. So a lot of detail that we might have to know for our lab practical, and we're going to talk about them and all the things we just discussed in great detail when we talk about the skeletal system. Here the other thing I want to point it out to you. If you have you highlighter ready, you're asked to look at bone as both a cross-section, which is what this is – this is a cross-section, transverse, and longitudinal. And so this – it tells you – this is at the top of page 17 underneath where it says locations. All bones of the skeleton. Example slide of this tissue in both transverse, right? Transverse is the diagram you're seeing. Transverse or cross-section and longitudinal. So this is also compact bone, and what do we see? We're seeing the Haversian canal, which isn't just an opening at the top, but it's an actual passageway all the way along the length of the bone. Here is the passageway along the length of the bone. This is also bone. Know it as well. Blood connective tissue and scanning. Actually, it's probably low magnification and high magnification. A specialized liquid connective tissue that is my second connective tissue that does not have fibers. Are there proteins, yes? There are proteins in the ground substance, which in case what is called plasma, but there are no fibers. So what [inaudible] high magnification I see many, many, many, many, many red blood cells and just a few white blood cells. So the white blood cells are the ones with the nuclei, which we see in purple here. Red blood

cells don't have nuclei, and there are many, many, many more of them. We'll talk about the blood in great detail when we talk about the circulatory system. Muscle tissue, I have three types and three types only. Skeletal, cardiac, and smooth. The location in the order that you're seeing listed here, skeletal muscle that is attached to the bones, cardiac muscle [inaudible] heart, and smooth muscle is the middle lining of my viscera. All muscles job is to contract, shorten to bring about some sort of movement. So here they are. This is what we're going to be looking at [inaudible]. This is a longitudinal section, long section skeletal muscle. I'm going to increase magnification. Here's what we would see. Skeletal muscle cells are called fibers. All muscle cells are called fibers. So this a fiber – skeletal muscle fiber, skeletal muscle fiber, skeletal muscle fiber. Skeletal muscle fibers, so they'll run out of the field of view. They have striations which we're seeing perpendicular to the length along here. And skeletal muscle is multinucleated. So [inaudible] multiple nuclei along the outside edges of each fiber. Again, it attached to bone to bring around movement. [Inaudible] skeletal muscle prepared so that I see some longitudinal [inaudible] striations. I am seeing multiple nuclei on the outside edge. [Inaudible] magnified so I can really see the striations. I can see the multiple nuclei. I can see the parallel arrangement of the fibers. This is a longitudinal section. This is one I am asked to look at different views. So that was a longitudinal section. I'm also asked to look at a teased and a cross-section. This is teased. So I've taken the fibers, and I've pulled them – see them on there? Long, long, long, long. They are parallel to each other. So I've taken the fibers and teased them apart, and I'm going to magnify that. High magnification. Here are my striations. Multiple [inaudible], multiple nuclei along the edge. Tease the skeletal muscle. And lastly, I'm asked to look at skeletal muscle in cross-section. So this – what does that look like? Well, it looks like a slab of meat. That's what meat is – skeletal muscle. So I have to cut through the skeletal muscle. I'll show you what I mean by this – I'll demonstrate this for you when we come back to Zoom. That was a scanning, this is a low, this is a high magnification. Here's what I would look for in a cross-section of skeletal muscle. It still looks like meat. But what do I know about skeletal muscle? Skeletal muscle is multinucleated. And the nuclei, these are fibers. Here's the skeletal muscle fibers, skeletal muscle fibers, I'm looking at the ends of the fibers, and I demonstrate this [inaudible] when we going back to Zoom. And the nuclei we said are on the outside of the fiber. So here we are. Multiple nuclei on the outside of the fiber surrounding the fiber. That's who we would identify skeletal muscle cross-section. Cardiac muscle looks a little different in longitudinal section. It has these gaps, and it's called branched. So cardiac muscle is branched, like the branches of a tree. I'm going to increase the magnification, and we still see the branching. But not some identifying features. So if you look really carefully, you're going to still see striations. Cardiac muscles also have striations. SO you can go ahead and make them out in here. They are not long. They are rectangular. So here's a single cell. They are not multinucleated. They have one single oval nucleus. Right? Here's a cell with a single oval nucleus. But the main identifying feature is at the green arrow. These are called intercalated discs. Intercalated disks

separate one cardiac muscle fiber from the next, and this is where electrical impulses are passed from one cell to the next. So we'll just save that for now. And, of course, talk in great detail about cardiac muscle when we talk about the circulatory system. This is a longitudinal section. This is cardiac muscle tease. It looks like a big blob of something. Not much to see here. So it would want to increase magnification. And we still see some blobs, but we can also now see intercalated discs and single oval nucleus. So even though it's not very clear, I should be able to identify that as cardiac muscle found only in the heart. And I'm asked [inaudible] cross-section of cardiac muscle just [inaudible] skeletal muscle in cross-section. Yeah. It looks like of the same with one big major exception. Cardiac muscle does not have multinuclear along the outside edge. It has a single nucleus in the center of a fiber. So I'm seeing a single nucleus in the center of these fibers. Single nucleus, center of the fiber. Cardiac muscle cross-section. The last muscle is smooth muscle. It's called smooth because it does not have striations. The [inaudible] are described as being – as having a spindle shape. They're fat – look at that diagram on Page 19. They're fat in the middle, come to a point at both ends. They have a single large [inaudible] nucleus, and they're going to be seen in a sheet in longitudinal section like we're seeing here. Sheet, arrow to arrow, these are the nuclei of the smooth muscle. Nuclei, nuclei in a sheet. This is [inaudible] smooth muscle [inaudible] middle layer of viscera. So this is surrounding some internal organ, maybe in the digestive tract. The other way we're going to look at smooth muscle is teased or isolated. Now, I'm going to say one thing to you, one Page 19, please look now, it says, please examine, I'm looking right above the diagram, examine tease and cross-section. Cross out cross-section. We are not looking at cross-section of smooth muscle. We're looking at – change that to longitudinal – longitudinal. So tease and longitudinal. Longitudinal is the first that I showed you, right? So these, going back, this is longitudinal. This is longitudinal. So those are longitudinal. And let's bring it back now. Longitudinal teased on low and high magnification. So I'm seeing individual fibers. Here's a good one. Here's a good one. Here are a couple that are kind of clumped together, but OK. That show that spindle shape, single oval nucleus, and no striations. Smooth muscle. And our last general tissue type – nervous tissue. Where are we going to find nervous tissue? In the brain and spinal cord, but, of course, we're also going to see nerves innervating our muscles and glands, which is nervous tissue too. It communicates. It communicates by way of neurotransmitters, and we're going to spend a lot of time on the nervous system and nervous tissue. I will say here there – we are going to be looking at neurons in lab. There's a second type of nervous tissue called glial or neuroglia that we will not be – well, I am going to show it to you, but it is not here on your Page 19 for lab. We're just going to be looking at neurons, which are the communicators. So this first slide is of a spinal cord. Some small [inaudible]. I can see almost all of the spinal cord, and I'm seeing the white matter of the spinal cord and the grey matter of the spinal cord. And if I focus in and focus in because in the grey matter, even from affair, I'm seeing neurons, cell bodies of neurons. So I'm going to increase magnification in that area, and here they are. Here's the cell body and nucleus

of a neuron. Cell body, nucleus of a neuron. And go back one more time, and the grey matter, central butterfly shape of the spinal cord. I'm focusing in here. This is what we're seeing. Oh, sorry. This is what we're seeing up close. This is what we're seeing up close. Cross-section through a spinal cord. The other way that we'll see neurons is in a smear. So I've taken that spinal cord, and I've smeared the tissue across this slide, and now what I'm seeing in between – all of this is that glial tissue that I mentioned a moment go. Glial tissue is not communicating. It's structural support, isolating, insulating for the neurons. The neurons are here. Neuron, neuron, neuron. So I'm going to focus in on one or two of those to see it in more detail. A neuron has a cell body and processes that I'm seeing coming off of this cell body. These are the dendrites, and it usually has one single long axon. Here's the nucleus. So this is a neuron. Here's another neuron, and all of this stuff out here glial cells, glial tissue, supporting, isolating, insulating these neurons. If I take one real close [inaudible] highly magnify neuron cell body, nucleus, dendrites, and you kind of just make out the beginnings of the axons here. Nervous tissue. Neuron. All tissues. We'll finish our discussion of all these tissues in more detail in the lecture on Tuesday. But not if I can remember, end of our – let me just stop the recording.