Welcome students, this module is about physical properties of minerals, streak and transparency. Here, you're going to here the outline is Streak is a property of minerals, and transparency is a property of minerals.

Learning outcomes would be understand streak as a property, understand procedure to determine streak, understand transparency as a property of minerals.

Streak Streak of the mineral refers to the color of the powder of the mineral and it may be quite different from the color of the mineral in mass or the actual color. Hence, this streak property is color of the powder of the mineral. It is not the color that we see directly of the mineral. It is a useful property for identifying for identifying the economic minerals and less useful for identifying most silicates. It is not useful property for identifying most silicates, but is especially useful in determining oxide and sulfide minerals. That is, economic minerals for mineral identification it is much more reliable than mineral color and it is easy to determine. This is because the powder of the minerals never changes. Whereas the color of the mineral, which is the first distinguishing property can change with the presence or absence of any defects or presence or absence of chromophores within the mineral, but the powder of the mineral that is streak color never changes, hence this is the determining property.

Now the usual method of determining streak is to rub the mineral against a ceramic plate, which is usually harder than most common minerals. So this is the ceramic plate on which this unknown mineral can be rubbed over, and its streak can be known. Now the color of this mineral and the streak color does not match, hence when whichever minerals which are softer than the streak plate can be used, this property can be used only for those minerals. Now calcite, for example, comes in many different colors, but calcite streak is always white. Now this is the color of the calcite, whereas this is the streak plate. Now when I rub this calcite over the streak plate, the color of the streak would be white. But if I consider this mineral or non mineral whose color is Golden yellow looks to be gold. But this can be cross checked whether it is real gold or fake gold by using streak as a property. Now on this streak plate, if I rub this mineral over the streak plate, the streak is black. Hence this mineral is not gold. This pyrite is called as fool's gold because its color is gold, but the streak is black. If it was pure gold then the color would have been Golden yellow. Haematite in the economic minerals haematite maybe red, grey or black in hand specimen and may or may not have a metallic luster. It always ever has a proper diagnostic streak, which is the cherry red streak. So this is haematite and this is magnetite. One first instance, the color looks the same, but when streak is checked this hematite will give you cherry red streak whereas magnetite will give you black streak. But there is another property which could be used to differentiate between hematite and magnetite that is obviously magnetic property. Magnetite is magnetic, whereas hematite is non magnetic.

So the degree of transparency and diaphaneity. Diaphaneity refers to minerals, ability to transmit light, so some minerals are transparent. Some minerals could be translucent and some minerals are opaque. So when they are thick, some distortion may occur, but light passes relatively freely through them. Uncolored quartz is quite is often transparent. Usually this property of transparency needs to be checked properly. Usually the property of transparency checked along the edges whether the edges are transparent or not,

whether you can see through the mineral or not, so this mineral for example, calcite if the mineral specimen was not very thick and it was very small, then the crystal would have been transparent. But since the since sample which I'm holding is massive, this sample looks to be translucent and near opaque but the original property is transparent to translucent.

Take for example this mineral. When we check for the transparency of this mineral, you check either edge or the center of the mineral or any other part of the mineral, take a small piece of the mineral or the largest possible available piece. Take any piece the mineral will be opaque. So, minerals that do not transmit light as well as clear quartz may be translucent, although it is not possible to see through them as with the transparent minerals, translucent minerals. If thin enough transmit light. Hence most ofthe transparent property needs to be checked along the periphery whether it is transparent, translucent or opaque. If a mineral is really opaque, it will be opaque, it'll be opaque here, and the thickness of the mineral will not make any difference on its transparency. So opaque mineral does not transmit light unless the mineral is exceptionally thin. Most opaque minerals are good examples, usually even if very thin piece of a mineral is taken still it is opaque. Hence this property is inherent property.

This is bibliography.

Thank you.