Hello everyone.

The title of the Unit Unit 2.

Modeling, structure and composition

of the earths crust, mantle and core.

Part 2 model Lumbo live in my

name is Kimberly Fiona fan so.

So in this particular module we are going

to study in details about the crust,

the mental and Co.

And to know what are the composition of

the internal structure of the Earth.

What is present in the crust?

The mantle and core?

At the end of this module,

you'll be able to summarize the

divisions of the Odds Interior

and their compositions.

In the previous module,

we had learned that based on

the densities within the Earth,

the seismic waves will either reflect

or refract at various depths.

When there is an abrupt change

in the velocity of the primary

waves and the secondary waves,

this abrupt changes will denote

there is a change in a medium.

So we have two major discontinuities

in the Earth.

One is the Moho discontinuity,

which occurs between the

crust and the mantle,

and the second at 2900 kilometers depth

occurring between the mental and the coal.

Accordingly,

the Earth is divided into the crust,

the mental and the coal.

Now let us take a look at the crust.

This is the outermost layer of the Earth.

Consider yourself eating an Apple.

You have the Apple in front of you.

The skin of the Apple is equivalent

to the layer of the earth,

which is called as a crust.

It is that thin.

So this crust has an average thickness of

around 35 kilometers below the continents,

whereas if you were standing

at the base of the ocean,

this crust would be around 5 to 8

kilometers thick and 60 to 75 kilometers.

If you were below amount and.

So the way that the thickness of

the cross depends upon which part

of the continent you are lying on.

The continental crust is then

divided into two major layers.

You have the upper layer and the lower crust.

Let us take a look at the upper crust.

This uppermost layer of the crust is

between is having a densities from

2.2 to 2.7 grams per centimeter cube,

and it is made up of mainly

sedimentary rocks and sediments

like sand stones and shells.

It is also called as a grenade layer

because they are mainly made up of grenades,

gneisses and interrelated

igneous and metamorphic rocks.

Sometimes you won't be able to see

everywhere this granite layer.

However,

you'll be able to see it all in those

places where the overlying sedimentary layer,

like of sand stones or shells have

been eroded away through agents

of erosion and through the process

of weathering.

Since this layer is mainly made up

of silicates of aluminium and potassium,

it is referred to as seal CR,

which means silica an aluminium

and it is a dominant component.

The boundary between the upper crust

and the lower crust is sometimes

referred to as Conrad discontinuity,

an.

It is variable in nature and missing at some

places. This lowers cost has a density of

around 2.8 to 3.3 grams per centimeter cubed.

In this particular layer,

the P waves attains a higher velocity

compared to the layer that's above it.

This layer is affordable.

Basaltic layer made up of amazing

minerals that are dark and heavy that

are rich in magnesium silicates.

Hence it is referred to as SEMA,

which means silica and magnesium.

As you know that the class now that we're

into upper layer in the lower layer,

the player has a lower density,

whereas the lower layer is

made up of basaltic layer,

which it has a higher density.

Therefore your PBS has a higher

velocity in this particular region.

The Oceanic crust is an extension

of this lower mostly are making

it the top layer in the oceans

and having an average density of

three grams per centimeter cube.

As you can see in this diagram,

the thing in the orange is the seal,

the topmost layer of the crust

and below it in black is a sema.

So this particular lowermost layer occupies

the topmost layer above the ocean crust.

As you can see,

the top layer of the ocean

crust is also black,

so therefore it's an extension

of the lower layer.

The average density of the continental crust

is around 2.7 grams per centimeter cube,

whereas of the ocean crust is

around 3 grams per centimeter cube.

And below the SEMA or the basaltic

layer you have the occurrence of the

more discontinuity that varies depends

upon where they are on the ocean,

their continent, or on a mountaintop.

Below that, Lisa mental.

This is the same diagram which is

showing you in a proper picture form

where you can see that your top,

the Gray,

the top Gray is your crust.

And below that you have your

orange which is your mental.

You can see as you move from the surface

to the interior at 2900 kilometers,

take a look at the figure T right.

The P waves has a sharp drop in the

velocity from 13 to almost eight,

whereas US waves here goes to almost zero,

so indicating a different kind of

layer and your next discontinue D,

which is your mental code discontinuity

or the Gutenberg discontinuity.

So the mental the mental extends

from the lower boundary of the

crust to a depth of 2900 kilometers.

It has been divided also into the

upper mantle and the lower mantle.

Seismic data suggests that the

density increases from 3.3 grams

to 5.7 grams per centimeter cubed

to the base of the mental.

Natalie Ocala Sistinas fear that

is also lying in the uppermost

part of the mantle and it's around

100 kilometers to 500 kilometers

depth and is believed the source

of all volcanic activity.

The mental is considered to be

of the rock type peridotite.

And how do we know this?

It's basically from the evidence

of the general,

it's that are brought to the

magma to the surface

by magmatic eruptions.

This xenoliths are basically rocks

that have not really melted but

just been implaced and caught

up while the magma was erupting

from great depths to the surface,

showing us the depth of the mental.

Finally, we go to the coal.

The core boundary starts begins at 2900

kilometers at the core mantle boundary,

which was also called as a Gutenberg

or Oldham discontinuity, and this

extends still the center of the Earth.

That is to 6378 kilometers deep.

The goal is further divided into

the inner core and the article.

The article is liquid.

We can rightly say so because the S waves

are not transmitted through the zone and

your P waves become very sluggish and

there is a reduction in the velocity.

But as your inner core is made

up of mostly solid metallic body.

There is a discontinuity between

the outer core and the inner core,

and that is referred to as

layman discontinuity.

The core is made up of iron and

small amounts of nickel and sulfur.

How do we know this is basically

because of seismic wave velocity

experiments that are carried out.

And also from the composition of iron

meteorites that are thought to be

remanence of the other plants that

were broken down during collisions.

So this iron meteorites are basically

stuff that were differentiated from

apparent body which differentiated

into your crust, mantle and core.

And this was not stable,

Andrew to collisions, it broke apart.

So this iron meteorites when they fall

into the onto the ground and we examine it.

We can know that the composition of the

code is made up of mainly dominant iron.

With some amounts of nickel and sulfur.

Finally we come to this diagram which shows

you in whole the number on the topmost is.

First is a continental crust

that is seen in Brown.

The two is the ocean of ocean crust,

which is seen in blue.

Then you have the upper mantle

followed by the lower mental.

Then you have an orange.

You have the code which is the outer

core and six is your inner core.

The A the letter A denotes him

overusing discontinuity that occurs

between the crust and the mantle and

B is your Gutenberg discontinuity.

Which occurs between the mental and the coal.

And he had the Lehmann discontinuity

is a discontinuity between the

outer core and the inner core,

which separates the liquid from the solid.

This is another image depicting

the same and the next module.

We will learn how we differentiate the

Earth based on mechanical properties of

the structures of the odds and area.

So this was basically made up

of your compositional layering,

but then you have the cost,

which was divided into the upper

crust and the lower crust.

The upper caste is CR.

The lower crust asema followed by a

mental which is made up of periotic rock,

and it is divided into upper

and lower mental.

And finally you have the code which

is dominantly made up of iron.

Some amounts of nickel and sulfur and

divide into outer core and inner core.

This is your reference.

Thank you.