



Medical Mavericks Workshop Script Guide.

Good afternoon, everyone.

My name is Tom.

I'm from Medical Mavericks. Welcome to your session with us.

We're having a play with some medical equipment this afternoon.

But before we started to kind of show you around the room what we've got available, what you're going to be doing and how it all works.

But before we start that, if you have a look in your workbook, you'll notice all the activities we're going to be doing.

And next to each one there is like a list of jobs he would use that case.

It's either in orange or green. The green jobs are like doctor type roles, but like specialist doctors.

So to get to those roles you need 7,8,& 9s at GCSE.

The orange ones are the non doctor roles.

They are sciences, they're technicians they're engineers, all different types of health professional that you might not have heard of, but they're not doctors.

That's the biggest point we're trying to get across here is it's not just doctors and nurses.

There are lots of different types of scientist.

And if you want to go into any of the orange careers, your start point for all of them is five GCSEs at levels 9 to 4.

So let's start with the basic observations on the front.

BASIC OBSERVATIONS - HEIGHT

Height is the first thing on that.



We've got a height chart on the floor just over there and if you want to measure your height, you have to lie down on the mat, make sure your feet are at zero and get a friend to measure how tall you are.

It's really a rough guide, but you can get your height on there as well.

You can also see which world record you are equivalent to as well.

BASIC OBSERVATIONS – BLOOD PRESSURE

Underneath height, we've got blood pressure.

Put your hands up if you've used a blood pressure machine before anyone.

Most of my have. Okay.

So I've got the blood pressure cuff and I'm going to put this on your left arm. Why do we put this on your left arm?

That's right

It's to do with the position of the heart.

Your left heart's on. The left hand side tilts the left.

And also the left side of your heart is the bigger side of your heart compared to the right. So the pressure's going to be higher.

Pop the cuff around your bicep, pull it round and you want it fairly tight.

Don't be a hero and pull it really tight. But just give it a pull and stick it up.

You can see this little white dots and this tube. They need to be by your elbow and not by your armpits. So if they're up, you've got it on upside down and take off and Switch it round.

Can you see on your work sheets where it's got your blood pressure picture, there are three boxes and it says SYS, DIA and PUL.

So when you do your blood pressure, you're waiting for three numbers that appear in those three spaces on the screen.

You press the button, the cuff is going to start to squeeze your arm.



If you don't like it, you're a wuss 😊

But if you really don't like it, press the blue button and it'll stop.

You can say the numbers are counting up on the screen and then they start to count down and you have to wait for the numbers to count all the way down.

The number that it gets to the top is not your blood pressure.

It's doing the calculation.

So it goes up, it counts all the way down.

And you're waiting for three numbers to appear on the screen, a top, middle and bottom that relate to what's on your sheets.

BASIC OBSERVATIONS – TEMPERATURE

Next up is temperature and oxygen level, which are over here.

Temperature is really straight forward.

I'm sure you're used to having your temperature taken.

You just point at someone's head, pull the trigger. I hate saying that..

And then get your temperature on the back. Anything around 37 is fine. It may be a little cooler as your skin is always cooler than the inside of your body.

BASIC OBSERVATIONS – OXYGEN SATURATION

Oxygen saturation uses this device.

You put it on your middle finger or your index finger. Press the button and then wait.

If you see a red line going up and down on the side, that's good news.

You've got blood in your finger and it's doing the calculation.

Okay, if things are cold, it might take a bit longer.



Nail varnish, acrylic nails, anything like that, fellas.... Will also affect if the device works ok.

If you do have anything on your nails, you put the put it on sideways.

And again, if you look on your sheet, there are two boxes on the pulse oximeter, one for your oxygen level and one for your pulse.

BASIC OBSERVATIONS – STETHOSCOPES

Stethoscopes are at the very bottom there.

A couple of stethoscopes at the table over there.

To listen to your your heart Try and put it through the buttons on your shirt, onto your skin, and you want to try and get it into a rib space kind of in the lower part of your chest.

Don't don't do a Superman, please. Okay.

ULTRASOUND MACHINE

If you open up your workbooks, get the top of page two.

We're going to do an ultrasound. I'm going to look at this part of your wrist here.

The radius bone. Your radius runs from your elbow to your thumb.

We can look at this lower section and we're looking for an image like the one we've got in the workbook.

Looks like a white line with a lump. And where the arrows pointing to in that picture can you see a little gap?

It looks like the bones being kind of split open. It's like pulled apart.

Yeah, That gap is called a growth plate.

And that's what we're going to look for.



We're going to look for your growth plates.

If you've got one you're still growing and you're going to get taller

If you do not have one, you've stopped growing.

And this is the height you're going to be for the rest of your life.

When we do this, you put a bit of gel on the end of the probe.

We'll be helping you as well. And you put the probe on this area of your wrist.

PULSE DOPPLER

At the bottom of that page, Page two, you've got the pulse Doppler.

That's this piece of kit. Has anyone see one of these before?.

So this can be used to listen to a baby's heartbeat in the womb, but you can also listen to your own pulse.

So I've put a gel on the end just there. And you turn it on by Rolling this wheel down at the side....makes a bit of noise when you kind of turn it on.

And what you're going to do is listen to the pulse in your elbow.

Okay, round here.

So the way you find it, you come up from your little finger, up the inside of your arm, and then over that lump just there, that's where you go in.

It's not in the middle. It's not on the outside. It's across This area just here.

So what you do, make sure the machine's on and you put the probe pointing in and angles are not straight down, but a slight angle and just slowly move it across that area.

And this is what you listening for.... Hear like a wobble sound?

You might hear two or three sounds in there.

So have a listen and see how many sounds you can hear and tick the right box.



KEYHOLE SURGERY

Top of page three you've got the keyhole surgery.

It is totally fine if you haven't, but put your hand up if you've NOT heard of keyhole surgery,

Anyone here?

Maybe.

Okay, So I'll give you an example of what keyhole surgery is used for.

If you wanted to take out someone's appendix from the bottom right corner of their abdomen, we used to do like a three or four inch cuts.

Open it up, surgically, remove it, and then stitch you back up, which is fine, but it takes a while to heal. You'd be in hospital for a few days. It's not expensive, but there's a cost to it.

So what keyhole surgery is, instead of doing a big cut, we put three or four holes and through one of the holes we put a camera inside and we can see what's going on.

Then we put these instruments through the other holes and we can do the surgery from outside by watching what's going on on the screen.

It takes less time, its less painful. It's cheaper and you heal quicker.

You're not in hospital for long. It's just better all round for everyone... patient and hospital.

But we have to practice. So we practice on boxes like this.

On the front, we've got the Kindle and what you can do is turn on using the kindle and swipe up to turn it on.

The camera's looking in the box.

In the bottom is a pegboard. And on this one, we have an elastic band.

What you've got to do is get the instruments and move your thumb so it opens and closes the grabbers.



These go through the holes and your challenge on this one is to pick up the elastic band and stretch it over the pegs into the shape that's displayed on the card, on the on the side over there.

The other box has got a shoelace and you have to thread the shoelace through the pegs with holes in them.

When you finish this undo it and let someone else have a go.

VEIN SCANNER

Next up is the vein scanner, which is this one. All you've got to do is press this middle button here, that turns it on.

And if you look at the back of your hand, you might be able to see the veins.

But if you shine this over your hand, you can see the veins underneath your skin.

If you press the color button, you can flick through the different colors.

If you press invert it, swaps it all over, and then do the colors again.

Its OK to shine it on your face, just close your eyes. You can do it on your arm.

That helps us see where our veins are to help us take blood a little bit more easily.

PHLEBOTOMY – TAKING BLOOD

Now, we're not taking blood from you, don't worry.

But the arm over there that you kind of saw when you came in.

That's my friend Andy. And you can have a go at using a real needle, at taking some blood out of the arm as well.

We'll show you how to do that.

We're going to do the ECG at the bottom, but I'll show you that in a minute.

Just go to the back page for the second.



PATHOLOGY GOGGLES & DRUNK GOGGLES

These are different sets of glasses you can try on and they represent different eye diseases?

When you try them on, it's like you have that all pathology.

This one is tunnel vision. I've lost all the peripheral vision, these two holes.

So I look at everyone's face individually, it's really kind of horrible to kind of find where you're going.

There's also the double vision, also known as drunk goggles.

You can get someone to put their finger up and you've got to try and touch the top of their finger with it, with them on.

On the table as well is this chart and it tells you which part of the eye has been damaged with those pathology goggles because not just one specific part of the eye. There are lots of areas that cause problems.

OPHTHALMOSCOPE AND iPHONE

(THIS NEXT BIT ON THE OPHTHALMOSCOPE ISN'T IN THE VIDEO!)

We also have this special eye camera called an Ophthalmoscope which lets us look through the black dot in the eye called the pupil. This is a hole!

However we have a special bracket that has been designed by a medical engineer. This allows us to attach an Apple iPhone onto the ophthalmoscope and use the camera on the phone to take a picture of the retina and optic disc at the back of your eye!

Literally making this an EYE-PHONE... (wait for laughter!)

We'll walk round with this and take your pictures if you want one.



RECORD & PRINT YOUR ECG - ELECTROCARDIOGRAM

The Last thing is the ECG, which is on page four.

So if you want to cut a stand up and follow me into the corner over here, I'll show you what we're going to do over here.

So to record your own EKG, what you need a three electrodes like this?

I'm going to put them one on each wrist on the bony bit by your thumb like that.

I'm going to put a third one on your right elbow on the right funny bone. Or on your right forearm somewhere.

You've then got three crocodile clips. Black, green and red.

We're going to put the black one on your elbow.

The green one underneath on the right wrist and the red one all on its own on your left wrist.

So the order is black, green, red.

What's the order?

(Reply from class...Black. Green, Red).

Excellent stuff.

The person being tested just sits nice, relaxed. Don't put your fingers together. Just sit nice and floppy. Nice, relaxed.

Tap the spacebar and there we go.

That's my ECG. It's lovely..

Press control P and then you press enter to print out.

Please unclip your crocodile clips.

Please don't pull them off. Unclip them properly.

You can pull your stickers off and you can stick them on the table or stick them on your printout to take home with you.



The next person gets connected up, you tap the spacebar again on the screen.

It might give you a little box with four options on.

You want to press the second option and that option says erase and continue.

What does it say? (RESPONSE: Erase and continue!)

Excellent stuff.

You don't click anything else. Don't click new. All you need is the space bar and erase and continue.

If you get stuck, just come grab me.

But it's spacebar to record, erase and continue.

It's a touch screen, so you just have to touch the button on the screen to get get it to start and then control P and enter for it to print.

Okay, those are your activities.

Go and have a play.

I'll be happy out with Andy and the ultrasound over there and I'll come help you out.