‘Assessment for learning in KS3/4 Science –   
Andy and physics’ transcript

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ANDY SMITH: Everybody ready to go? Everyone ready? Be cool. Be calm. Remember what we’ve done. Remember the bits we do at the beginning and the end of the lesson as well. Get all them things inside your head. You’ve got 40 minutes. Eyes down, [INAUDIBLE].

NARRATOR: This is Andy Smith. Andy’s a physics teacher at Woodchurch High School on the Wirral.

ANDY SMITH: The lower years, seven, eight, and nine, they do six weeks of lessons, then they have a test at the end. Years ten and eleven, it’s GCSE exams. So three times a year, they have sort of big GCSE exams. With the lower years, you give them the test. I mark it, then I hand it back.

Andrew, 93%, 3% more than last time. Shawna, 74%, better than last time. Good girl. In fact, what was that, 74%. Your last one was 69%, five more. Good girl. Dan.

We go through, we see what they did right, see what they did wrong.

Question one, you’ve got someone else’s paper. Let’s go for it. Right. So, question one, we’ll start with you, Shaun.

I get them to swap papers because if I’m spending a lesson going through a test paper, and they’ve got their own paper, it’s just quite easy to sort of drift off. So you can compare yourself to how you neighbour did, so you can say, oh, he’s done better than me, or I’ve done better than him. And then see what they did as they went through.

Kesha, we need – next question is a little bit about heat flow. And the first question says that someone’s got a fire – someone has a fire on in a room, and heat is moving around the room. Question one says, when will heat stop moving around the room. What answer have we got there?

KESHA: When all the room’s the same temperature.

ANDY SMITH: When all the room’s the same temperature. That’s a big tick. Did Kesha get the one right? Very good. Right. Next one. It says there, Damian, that heat will continue moving around the room. And heat moves from where to where? Where does it move?

DAMIAN: From hot to cold.

ANDY SMITH: From hot to cold. Big tick there, please. Has he got that one right?

STUDENT: Yeah.

ANDY SMITH: He did, as well. Right. So up to you, Connor, now.

NARRATOR: To monitor their progress, and to allow them to self-assess, the students have a target sheet upon which they record the marks for each test.

ANDY SMITH: Normally, and they do their test, and then I mark them. And then they’ll be doing an activity, and I call them up one at a time. I mean, you don’t want to embarrass everyone in front of the class.

So when they’re doing something, you call them up one at a time. You get them to write it in. At the end of each test, they can put their mark in. And they can basically assess how they’ve done by how they’re mark has done.

Right. So how have we done on our tests? So we started off on there, 5.0. Good test mark, there, sir. Then we had a 5.4. So you went up by 0.4. Then back to 5.0, but still good marks. Now, on this last one, we got a 5.1. So you’re back up, to 0.1 up. All your test marks, even though some are up, some are down, they’re all above level 5. Now you should be hitting level 6 by the time you’re in year 9. So at the moment, all your test marks above level 5. That’s the way forward, sir.

If they thought, I did really good on that topic, but then they got a mark that’s not so good, that mark goes down in stone so they can assess their revision. Maybe they didn’t revise as well as they could.

But on the flip side, if everything’s going great, and their marks are going up or they’re – they don’t always have to go up, as long as the marks are consistent. That’s good enough, because no one can keep going up and up. Then they can see how they’re going. They can assess for themselves that they’re making progress.

And they, you know, they can see all the time. And say mum or dad wants to see how they’re doing, all they need to do is open the cover of the book, and the marks all year, and the homework marks, are all there. So anybody can look at any time.

Now, you tests, then, so, first one we had 4.8. Not bad. Then 5.4. Good stuff. Then you dropped down there to 5.0, but you’re back on the up again, because the one you got now is back up to 5.2. So you’re on your way back up now. So you should be, by the end of year 9, so level 6. So if we’re hitting 5s now, we’re doing OK. So all three of them are above 5. And you’re on the way back up again, up 0.2 again.

At key stage 3, you go from a 3 to a 7 in science. We used to just give them a mark, a level 5, a level 4. But that’s not enough, really, because someone could get 5 all year. And I’ve got like 4.6 up to a 5.4, so there’s a big gap there. So we, ourselves, give it a decimal point.

So the percentage on the test corresponds to a SAT mark to one decimal place. So it’s something we just do ourselves, but when they do the SATS in year 9, they’ll just get a straight 6 or straight 5 or whatever.

STUDENT: The feedback that Mr. Smith gives is like encouraging. He’s, if you’ve done a bad score, he’ll say how to help. And if you’ve done a good score, he’ll tell you, well done and stuff.

STUDENT: The feedback that Mr. Smith gives me helps me a lot, because he really encourages you. If you get like a 5.5, it’ll make you do better by like the games help you learn, and the experiments help you learn.

NARRATOR: Playing games in lesson is Andy’s trademark, but beneath the fun is a serious objective.

ANDY SMITH: Well the lessons can sometimes quite drag a bit, especially if there’s no practical. So I always like to use – to do something different at the end, just something a bit fun. And then the idea is a few years ago [INAUDIBLE] came in. So I’ve kind of changed them slightly so I can use them for assessment purposes.

STUDENT: The games help me remember a lot, because they’re fun. They stick in your head for longer, and then, by the end of the term when you do the test, you’ve got everything in your head because you can trot back to those games that you’ve been playing.

ANDY SMITH: Because you’ve got to find out what they’ve learned. It’s easy to stand at the front, and just say, right, da da da da. And it’s a bit boring. It’s boring for them, and it’s boring for me. So if you’ve get like a little bit of interaction, get people out doing stuff, kids kind of think, oh, that’s the end of the lessen. We’re just going to muck about and play a few games, but it’s not really. It’s a sneaky way for me to see what they’ve learned.

STUDENT: My favourite game’s The Loop of Fury because it develops your listening skills and like your communication skills, as well as remembering things. And it’s fun as well.

ANDY SMITH: On your desk, there are little glass jars. Right? And in your little glass jar, there are little pieces of paper. Lift them out and pass them around, so everybody’s got at least one. Pass them around, and everybody should have one. One table’s got one less because I couldn’t think of another question, but life goes on.

Now everyone’s got a little piece of paper. Now somebody’s got number one. Right. So, Luke’s got number one. Now what happens is, Luke reads out his questions. Then somebody else in here has the answer to that question on their little card. Then you say your question, and we go on, and on, and on, and on, and on.

So listen now for your question. And then it goes all the way back to Luke. And then we stop the clock. So we’ll try it now. And we’ll try it the end, and see if we can do it quicker at the end. That make sense? Yes? Three, two, one, go.

STUDENT: [INAUDIBLE]

STUDENT: Is this a transverse wave? What is the top a transverse wave called?

STUDENT: It’s the peak.

ANDY SMITH: Good lad. Go.

STUDENT: What is the bottom of a transverse wave called?

STUDENT: A trough. How do you remember these?

STUDENT: A mountaintop peak is at the top. A pig eats out of the trough. What are the distance from peak to peak called?

STUDENT: It is a wavelength. What else can you measure the wavelength?

STUDENT: From trough to trough.

ANDY SMITH: If you’ve got like a class of, say, 25, and you give them two questions each, that’s 50 questions on everything you’ve done in a topic. And it’s a bit of excitement as well.

Time it. Come on, come on, getting it quick. Get it quicker. And then, at the end of the lesson, swap cards and hopefully we can do it a little bit quicker.

STUDENT: It will be a very quiet. What kind of sound does with a small wave have?

STUDENT: It has a high pitch. What kind of sound does a wave with a long wave have?

STUDENT: It will be loud.

ANDY SMITH: Yes! 3: 03. Goodness me, three seconds. I was getting a bit heady in the end there, with three seconds. All right. Pop them back in the jars, please.

STUDENT: I think that the teachers should play games in the lesson, because, even though they think it’s silly and everyone’ll mess around, it’s actually not. It helps you remember more things for that lesson. And it’s better, and it keeps you more occupied than sitting down, writing stuff all the time in lessons.

ANDY SMITH: This next one is called the Above Head Game. What happens is – Mathew here, because we have 4 people – at the front right? And they’ve got a word written above their head. Now, we’ve only had two lessons, so it’ll be from last lesson or this lesson.

And you have five lives. And you have to ask the class a question. You might be like, am I to do which waves. And for every yes, you keep alive. But for every no, you lose a life, and lose a life, and lose a life. If you have a guess, and it’s incorrect, you lose a life. The idea is to guess what you are before your five lives have gone.

That’s a really good one for difficult keywords, and seeing how much they know about the word that’s above their head. So rather than guessing what they are, they have to ask questions. But again, the whole class is involved, because if you’re not stood out, you’ve got to answer the person’s question. You’ve got to say yes or no to their question. I don’t know if you can do that in other subjects. When looking at science, there is quite a lot of factual recall that you can just go through.

STUDENT: Am I something to do with heat?

CLASS: Yeah.

ANDY SMITH: Yes. Now I’m to do with heat flow in a solid. Am I a material that is a bad conductor?

CLASS: No.

ANDY SMITH: So many lives have I got? I got four now. Thank you.

STUDENT: Am I to do with something about things moving in the solid?

CLASS: No.

STUDENT: Am I something to do with heat moving in a gas?

ANDY SMITH: Is she something to do with heat moving in a gas? Yes. Got another guess?

STUDENT: Can’t remember.

ANDY SMITH: OK. Am I something to do with a good conductor?

CLASS: Yeah.

ANDY SMITH: Can I have a guess? Am I metal?

CLASS: No.

STUDENT: Am I a bad conductor?

ANDY SMITH: Is she a bad conductor? No. You asked a minute ago, you said, something to do – is it to do with like heat moving? And it is to do with like heat moving. And it’s when, perhaps, heat doesn’t want to move. When what?

STUDENT: Um, when –

ANDY SMITH: It’s not your go.

[LAUGHTER]

ANDY SMITH: You’re something to do with – you are heat moving. You’re something to do with convection.

STUDENT: Heat rises.

ANDY SMITH: That’s the one, rises.

STUDENT: Oh!

STUDENT: At the end, you’re normally like, just want to fall asleep. When he brings the games, it’s just like – you just like get happy.

ANDY SMITH: First things first. On board. We have 30 little pieces of paper. Underneath each one of them little pieces of paper is something new that you’ve learned in science this year. Something new, like you came in at the beginning of year seven, I have no idea what that meant. I have no idea what that meant. I have no idea what that meant.

I want you to make up a sentence with something in there. So if it said, for example, Jade Cowell, you’d say, Jade Cowell sits at the front. Danny, get your coat off. If the question was, coat on, you could say Danny Butler still has his coat on. So you’ve got to make up a sentence. Right. Who wants to have a go? Let’s hear it for Londell.

That’s just a simple one to practise literacy. It’s good with the year 7 and 8, who are being introduced to lots of new science words, because of course marks on SATS are for good sentence structure. If you just put down the word, you won’t get the mark. So it gets them used to making sentences with these science words then.

That will do it for me. Let’s have another one. James.

JAMES: 15.

ANDY SMITH: Number 15. Can you tell me, please , sir, a sentence with the word ‘joules’ in.

JAMES: Energy is measured by joules.

ANDY SMITH: I’m loving it. Let’s have another one. Neville.

NEVILLE: Number 14.

ANDY SMITH: Number 14. Can you tell me, please, a sentence with the word ‘weight’ in.

STUDENT: Weight is a force that pulls you down.

ANDY SMITH: Weight. Your weight is your force that pulls you down. Let’s hear it, [INAUDIBLE].

STUDENT: 11.

ANDY SMITH: [INAUDIBLE] 11. A sentence with ‘law of energy’ in.

STUDENT: In the law of energy, you can’t create it and you can’t destroy it.

ANDY SMITH: Magnificent answer. Jamie.

JAMIE: Number 24.

ANDY SMITH: Number 24, you’ve got gravitational potential energy.

JAMIE: There are two ways you can get gravitational potential. Put more weight on or go higher.

ANDY SMITH: You’ve got gravitational potential energy. There’s two ways to get more, get higher or get heavier. Let’s hear it, Barton.

BARTON: 26.

ANDY SMITH: Number 26. I’ve done elastic potential twice, so we’ll go on to – nice easy one for you – light energy.

BARTON: Light energy is energy that you can get in light bulbs.

ANDY SMITH: [INAUDIBLE]. Let’s have another one. And it’s you, Quinn. Number 10. Can you tell me, please, Miss Quinn, I’ve got universal indicator.

STUDENT: You either enter an acid or an alkali, and it changes colour.

ANDY SMITH: I’m loving it. One more. Someone from over here. Well done, Miss [INAUDIBLE].

STUDENT: Number 3.

ANDY SMITH: Number 3. Love your bow in your hair today. Can you tell me, please, now – we did about this yesterday. And we’re going to do about it today, chemical energy.

STUDENT: Something you find in food.

ANDY SMITH: Everybody asks me where I got my ideas from. Some of them I like robbed from other places. Like the Sentence Game, it’s just questions [INAUDIBLE], really. So you just keep your eye on things. And if you think something’s good on the telly or something, you think, oh, how can I adapt that? How can I use that? You know, if you see a quiz show, and there’s a certain round that’s good, you think, oh, how can I adapt that to my classroom.

STUDENT: Teachers who don’t do it, they like [INAUDIBLE]. Like you can’t learn properly, like boring teachers that like go on all the time. But then Mr. Smith it’s like [INAUDIBLE]. And like teachers like should always be like that, I think.