THE IMPORTANCE OF GETTING HANDS-ON WHILE LEARNING FROM HOME

Getting hands-on during STEM lessons is the norm while students are in school, but what does that mean for *teaching remotely* when they may not have access to all the tools and equipment they might have at school? Students' learning is clearly going to be less hands-on than normal. Will this be detrimental to their learning outcomes, and how can educators ensure that students can get hands-on while they learn from home?

What are the benefits of hands-on learning?

The many benefits of hands-on learning are well-documented, and it's a learning philosophy we believe in whole-heartedly at Arduino Education. Learning by doing means that:

- Students are more engaged
- They are much more likely to remember what they've learned (it's the difference between *remembering 20% of a lesson and remembering 75% of a lesson*)
- They can apply what they've learned in different contexts
- Their performance is up to *20% higher*
- The gap between academia and 'real life' is reduced
- Problem-solving and critical thinking skills are improved
- Students are in control of their learning, rather than following a pre-determined path
- Hands-on learning boosts creativity

Another *benefit of hands-on learning* is that it suits most students' learning styles.

Why hands-on learning is so important in STEAM subjects

Reading alone doesn't give students *real STEAM experience*, nor is it motivating enough to get them to explore and love this type of subject matter. Theoretical learning on its own could have a knock-on effect on academic performance, which may suffer.

It's the *experience that counts in STEAM lessons*. It's experimenting, getting things wrong and figuring out how to correct them - it's learning from your mistakes.

Getting hands-on in STEAM also means students are better able to apply what they've learnt to new problems. They learn how to problem-solve and think critically so that they can find creative solutions while improving their knowledge and skills.

How can you help students get hands-on if they're learning from home?

One of the simplest ways to help students get hands-on in STEAM lessons as they work from home is to create lessons with experiments they can do using common household items. A simple internet search provides a *whole host of ideas*, from *learning about plant transpiration* to *launching a rocket* and *making a lava lamp*.

There are also a lot of affordable educational STEM kits available. Many of them contain multiple lessons or projects that build on from each other, as well as teacher guides and lots of support. These types of kits make it easier for you to control your students' learning outcomes and assess their work even when they are learning remotely.

How Arduino Education is helping students get hands-on while learning remotely

At Arduino Education, we're supporting educators (as well as parents and students) with *plenty of resources*, including videos, tutorials, live streams, articles, and tips and tricks, to help you teach and learn remotely.

We also have two remote learning electronics and coding kits; the *Arduino Student Kit* which has been designed for home learning and teaches basic concepts to students aged 11+, and the *Arduino Starter Kit*, which helps children aged 14+ get started. Both kits provide step-by-step instructions and all the kit components students need to learn from home, and no prior knowledge or experience of electronics or coding is required.

You can get your own *Arduino Starter Kit* or *Arduino Student Kit* in our online store, or *find a distributor in your country*.