The Lesson in a Box The Environment pack for micro:bit is a complete set of parts & teaching resources to enable successful cross-curricular lessons at KS3/4 (US equivalent - Grades 6-8/9-10). Lessons come with a detailed lesson plan, cross-referenced to: class slides, workbooks/worksheets, checklists etc., technician's notes and where appropriate, AFL guidance with answers and plenaries.

The Lesson in a Box - The Environment spans Computing, Design & Technology, Biology/Combined Science, and all also contains enrichment day activities.

Computing - Your Smart Greenhouse lessons are all about designing software for the greenhouse.

Design and Technology - Your Smart Greenhouse lessons are all about designing for specific environments.

Biology/Combined Science - Your Smart Greenhouse lessons are all about factors affecting photosynthesis.

In developing this box we wanted it to be affordable, useful and robust enough for teachers to use again and again. The resources cover not only the KS3/KS4 (US equivalent - Grades 6-8/9-10) specifications but also personal development by encouraging pupils to view traditional STEM activities as having value across their curriculum.

The teaching resources included in this pack are, we hope, set out in a 'teacher-friendly way, with sufficient detail to enable you to 'lift' them, photocopy them and run your lesson(s) with minimal fuss straight out of the box, and/or to edit and personalise the resources if you so wish.

Each lesson includes;

Technicians Notes.

Lesson plans/Schemes of work.

Powerpoint presentations.

Workbooks/sheets.

Software guides.

Assessment questions.

Example code.

The activities in The Lesson in a Box The Environment pack utilise the BBC microbit, the Kitronik Smart Greenhouse kit for micro:bit and servos and silicone tubing specifically for these activities. The advantages of the microbit are that, while being easy to use, it is feature-packed and it can be coded with languages that suit every ability level.

Also included with the kit is a large lifecycle of a plant poster, ideal for the classroom wall.

Features:

The Lesson in a Box (The Environment) is a complete set of electronics and teaching resources to enable successful cross-curricular lessons with minimal teacher effort.

The 21 included lessons span D&T, Computing, and Biology/Combined Science.

No soldering is required for technicians or students.

The kit and teaching resources have been tried and tested by real pupils and developed by real teachers to save you time.

In developing this box we wanted it to be affordable, useful and robust enough for teachers to use again and again.

The resources cover not only the KS3/KS4 (US equivalent - Grades 6-8/9-10) specifications but also personal development by encouraging pupils to view traditional STEM activities as having value across their curriculum.

The subject packs come with a detailed lesson plan, cross-referenced to: class slides, workbooks/ worksheets, checklists etc., technician's notes and where appropriate, AFL guidance with answers and plenaries.

Packaged in a sturdy reusable Gratnells tray that will keep the kits together and safe in between uses.

Just add micro:bits for each kit and you are good to go!

It's fun to teach and fun to learn!

Contents:

There are 10 student and 1 teacher sets of Electronics (11 sets in total) supplied in a large reusable Gratnells tray. Each set includes:

2 x Moulded plastic greenhouse enclosure parts.

1 x Kitronik Environmental Control Board for micro:bit.

1 x Water Pump.

1 x Kitronik ZIP Stick.

1 x Mini Prong Moisture Sensor.

5 x Crocodile Leads.

1 x ZIP extension cable.

1 x Screwdriver.

1 x Servo.

Also included in the kit are;

5M of Silcone Tubing.

Gratnells Tray.

Lid for Gratnells tray.

A lifecycle of a plant poster, ideal for the classroom wall.

User guide Booklet, containing assembly and coding instructions.

2GB USB drive containing all documentation and lesson materials.

The USB drive contains:

All of the documentation, including full teaching resources for 21 lessons, including 3 complete half-term projects are included on the 2GB USB drive supplied with the kit. The contents of the drive include;

A quick start guide.

A software guide.

A teleterm setup guide.

A Greenhouse Kit build video.

Lesson plans/Schemes of work.

Design & Technology:

KS3 Smart Greenhouses in Challenging Environments (Scheme of Work - 6 lessons)

KS4 Design Prototyping (1 lesson)

Computing:

KS3 Data Collection & Analysis Creative Project (Scheme of Work - 6 lessons)

KS4 Artificial Intelligence & Machine Learning (2 lessons)

Biology/Combined Science:

KS3 Factors Affecting Photosynthesis Project (Scheme of Work - 6 lessons)

KS4 Impact of Light on Photosynthesis Experiments (2 lessons)

Powerpoint presentations.

Workbooks/sheets.

Assessment questions.

Example code.

Requires:

1 x micro:bit per kit.