BT Group

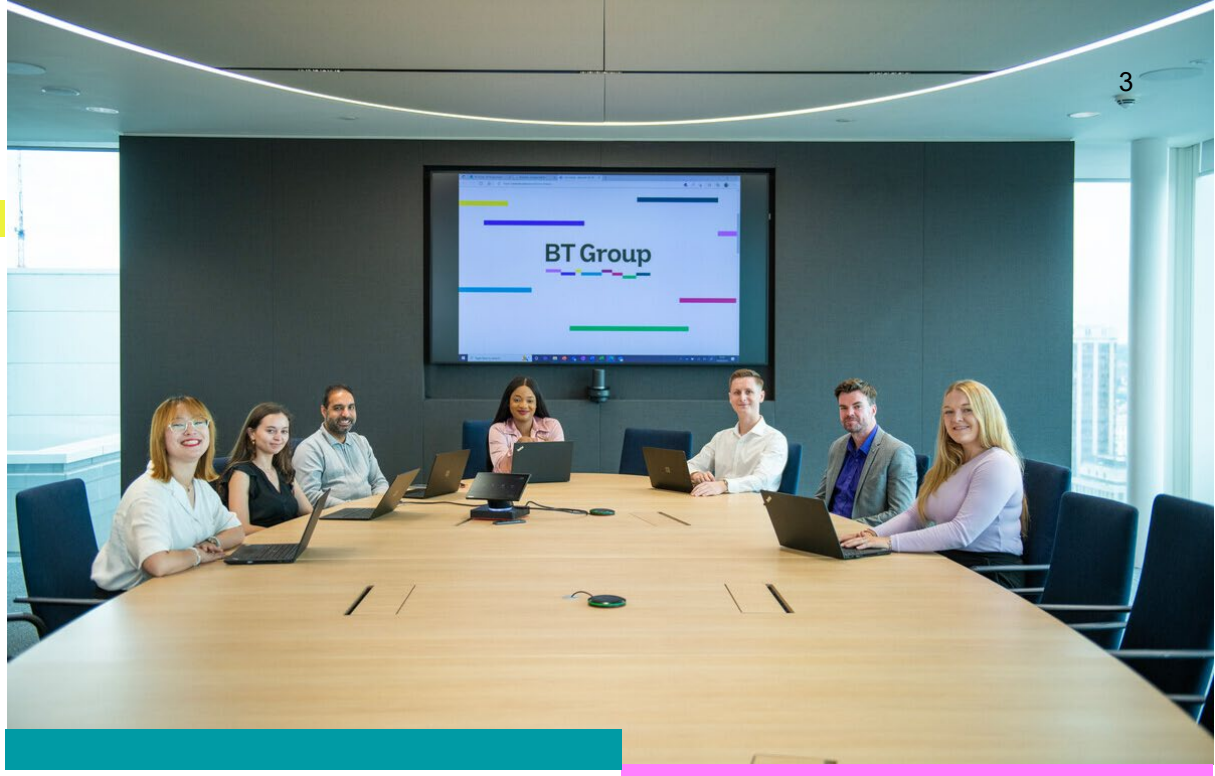
The Internet of Things (IoT)

Product design challenge

In today's technological world, we are more **connected** than ever – in our **homes**, at **school** and across the **workplace**. By allowing **devices** to 'talk to each other' through the **internet**, we are able to **share information**, **operate machines** and **complete everyday tasks** even when we're towns, countries or even continents apart.

This is the **Internet of Things**, or **IoT** for short.

The **IoT refers to a network of devices that are connected to the internet.**



Across many different industries, businesses like BT Group are using the IoT to devise innovative ways to connect businesses, customers and people all over the world. This can improve the way people work, make our day-to-day lives easier, and help companies provide better services to their customers.

Big Thinking...

In this module, we will consider:

*What are the **risks and benefits** of the IoT?*

*Should smart **devices** be **allowed to make decisions** for us without our **consent**?*

Module overview

01

The IoT: a world of connectivity

Learn about the IoT and how it works through a series of interactive activities and roleplay.

02

The big IoT debate

Debate the possible ethical considerations of using the IoT in our day-to-day lives.

03

Product design challenge

Work in groups to come up with a new IoT product idea, using a 3D modelling programme to create visuals of your design.

04

Presentations and reflections

Module objectives

Today's lesson is one part of a module of four lessons.

By the end of the module, you will be able to demonstrate different technical and human skills that will help you succeed in a future transformed by technology.

Module objectives

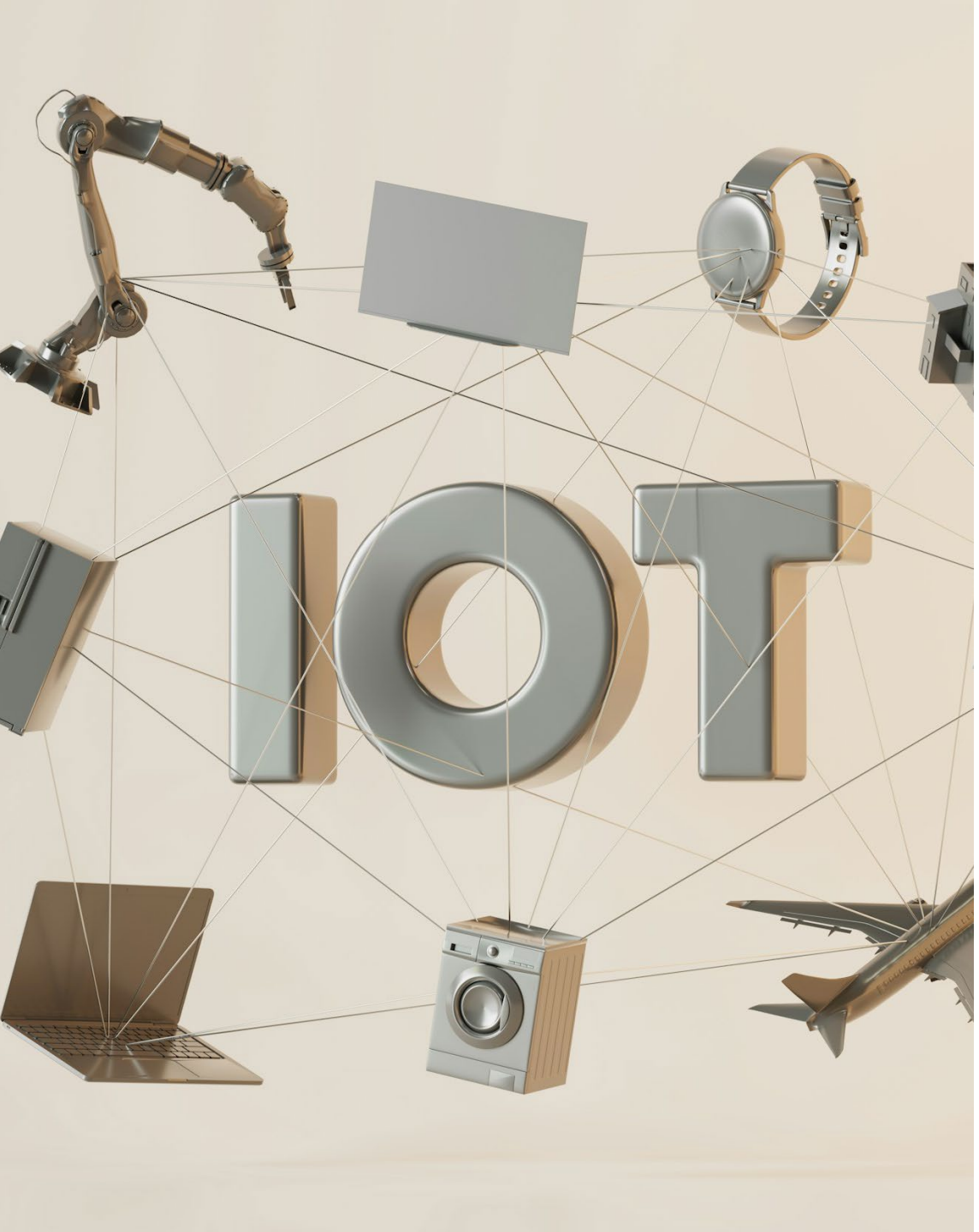
This module will focus on the following skills:

- Technical skills: using and managing digital devices, platforms and apps
- Human skills: critical-thinking and problem solving

Lesson objectives

By the end of this lesson, you will be able to:

- Understand the importance of testing and iteration when building a technical tool or product
- Create an IoT product concept using 3D modelling software
- Practice teamwork, communication skills and creative thinking



Test your knowledge

- How do IoT systems collect data?
- How do IoT devices use the internet?
- What are APIs and how are they used in the IoT?
- How can IoT technology make our lives easier?

Project brief

You have a job at a company working on tech innovations that make everyday things like backpacks, water bottles, and even lunchboxes ‘smart’.

Imagine an IoT product that could tell you where you left your backpack or causes your water bottle to light up when you haven’t been drinking enough water, or a device that tells you how healthy the food in your lunchbox is.

Your challenge is to devise your own IoT product idea.

You’ll need to think about:

- What sensors and data will your device use?
- What metadata will you need to collect?
- How can your product improve your audiences’ lives?
- What data and privacy issues will you need to consider?

Introduction to TinkerCAD

Plan your product

In your groups, think of an idea for your product.

- What sensors and data will your device use?
- What metadata will you need to collect?
- How can this product improve your audiences' lives?
- What data and privacy issues do you need to consider?

Design your product

TinkerCAD time

To access TinkerCAD:

Following this link: _____ Enter this code:_____

Check out these 3D design tutorials to get to grips with the programme:

Recap

What have you learnt today?

- What makes a good IoT product?
- Why is it important to plan a product before the actual design phase?