Advanced Connectivity Technologies (ACT)

Discover how networks connect people, places and devices — and imagine what faster, smarter connections make possible.

What is advanced connectivity?

Advanced Connectivity Technologies (ACT), also called future telecoms, move data quickly, securely and reliably. They include mobile networks such as 5G and future 6G, fibre-optic networks, satellites and the systems connecting everyday devices. These technologies enable communication between people, machines and services — from connected vehicles to remote healthcare.

Why does it matter?

ACT is one of the UK government's six frontier technologies. Reliable connections underpin modern life, business and public services, and enable innovations such as smart cities and the Internet of Things. Future careers include network engineering, software, telecommunications, satellite systems and cyber security.

Our TechFirst advanced connectivity activities

DISCOVER · 45 MIN · KS3 | TF-ACT-DIS-001

Discover Advanced Connectivity

An interactive introduction to how information travels, why connectivity matters and how networks support everyday life.

EXPLORE · 60–75 MIN · KS3 | TF-ACT-EXP-001

Can You Build an Internet?

A hands-on network modelling challenge: teams connect devices and explore how information finds its way.

EXPLORE · 60–75 MIN · KS3–KS4 | TF-ACT-EXP-002

Invent the 5G Future

Teams use 5G capability and problem cards to design and pitch a connected solution to a real-world challenge.

EXPLORE · 60–75 MIN · KS3–KS4 | TF-ACT-EXP-003

Connect the School

A Cisco-inspired activity: design a school network and consider coverage, reliability and resilience.

EXPLORE · 60–75 MIN · KS3–KS4 | TF-ACT-EXP-004

Tech for Good

A Qualcomm-inspired challenge: design a connected device that addresses a community need.

EXPLORE · 60–75 MIN · KS3–KS4 | TF-SEM-EXP-004

Can Connected Cars Prevent a Crash?

An Arm Education micro:bit activity exploring how connected vehicles exchange information to improve safety.

EXPLORE · 60–75 MIN · KS3–KS4 | TF-SEM-EXP-005

Build a Connected Smart City

A proposed Arm Education micro:bit challenge to design connected systems for a smarter city.

How we learn

Our coach-led sessions use a tell–do–reflect approach: introduce a concept, try a team challenge, then discuss what worked and what could improve. Students practise curiosity, collaboration, creativity and problem-solving.

For schools, students and employers: discover the programme and enquire about taking part at.
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