

# NATIONALS IN A NUTSHELL

The National Parent Forum of Scotland Summary of Engineering Science National 4

ENGINEERING  
SCIENCE  
TECHNOLOGIES

NATIONAL  
4

3  
UNITS

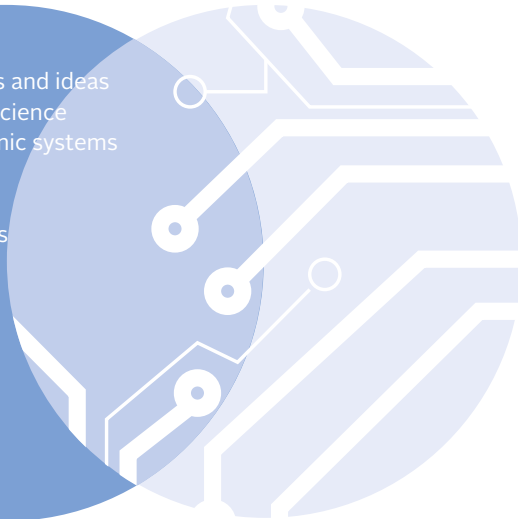
ENGINEERING CONTEXTS AND CHALLENGES  
ELECTRONICS AND CONTROL  
MECHANISMS AND STRUCTURES

+  
ADDED  
VALUE  
UNIT

ADDED VALUE UNIT: ENGINEERING SCIENCE ASSIGNMENT

## What skills will my child develop?

- knowledge and understanding of straightforward engineering facts and ideas
- understanding the relationships between engineering, maths and science
- an understanding of mechanical, structural, pneumatic and electronic systems
- the ability to apply analytical, design, construction and evaluation skills to a range of straightforward engineering problems
- knowledge of the workings of a range of simple engineered objects
- the ability to communicate engineering concepts
- an understanding of the role and impact of engineering in society
- knowledge of the relevance of energy, sustainability and efficiency to straightforward engineering problems
- the ability to use materials and equipment for straightforward practical projects
- design and problem-solving skills
- planning, organising and researching in a technological context



## WHAT WILL MY CHILD EXPERIENCE DURING THE COURSE?

- Active and independent learning through self and peer evaluations, setting targets, using feedback, reflecting on learning, making independent decisions
- A blend of classroom approaches including hands-on practical tasks, such as experiments and open-ended investigations; whole class interactive learning; group work and peer learning; visits to manufacturers or project sites
- Collaborative learning: working in pairs, small groups or teams to develop; links with other curricular areas such as physics, maths and social studies subjects; links with employers and businesses
- Space for personalisation and choice: learners can choose their Assignment for the Added Value Unit with guidance from their teacher
- Applying learning
- Embedding literacy and numeracy skills: measuring; estimation; managing production timing; communicating; reflecting and reviewing; researching and presenting information; using technology.

## ASSESSMENT

- To gain National 4, learners must pass all Units
- Units are assessed as pass or fail by the school/centre (following SQA external quality assurance to meet national standards)
- Unit assessment (or 'evidence of learning') could be presented in a variety of ways such as notebooks, records of group discussions, presentations, reviews, testing, videos and experiments. A portfolio of work may be prepared
- The Added Value Unit (Assignment) will require learners to solve an engineering problem and demonstrate skills in analysis, simulations, construction, testing and reporting.

National 4 progresses onto National 5

For more detailed course information:

SQA: Engineering Science National 4: [www.sqa.org.uk/sqa/47451.html](http://www.sqa.org.uk/sqa/47451.html)

Education Scotland: [www.educationscotland.gov.uk/nationalqualifications/index.asp](http://www.educationscotland.gov.uk/nationalqualifications/index.asp)

Curriculum for Excellence Key Terms and Features Factfile:

[www.educationscotland.gov.uk/Images/CfEFactfileOverview\\_tcm4-665983.pdf](http://www.educationscotland.gov.uk/Images/CfEFactfileOverview_tcm4-665983.pdf)



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