Alligator Workshop overview

Lego Computing Workshop – Lego software, motion sensor, Hungry Alligator

*Summary: The children will be taught how to use the Lego software and instructions and create their own designs. They will then build an Alligator robot, connect a motion sensor and write algorithms to control their creation. The children will be encouraged to upgrade and improve the Alligator by adding more Lego pieces.*

National Curriculum objectives covered: [ICT](http://www.juniorstem.co.uk/programmingworkshops.html) [Design Technology](http://www.juniorstem.co.uk/designtechnologyworkshops.html) [science](http://www.juniorstem.co.uk/science-workshops-primary-schools-ks1-ks2.html)

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| **Session breakdown** | **Objectives** | **Activities** |
| *Introduction* | * Introduce Juniorstem and give a brief outline of the day.
* Assess prior knowledge and introduce STEM subjects/Robotics
* Introduce kits/equipment
* Tell children their learning Targets and the skills I will be looking for
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| *Identifying Lego pieces and working accurately* | * How to use colour, shape and studs to identify pieces
* To use studs to work accurately
* How to join pieces and strengthen structures
* Workshop rules
 | * Teach and learn
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| *Lego software and algorithms* | * To teach children how to write an algorithm using Lego software blocks

(INPUT/OUTPUT, motor on/off, direction, power, timer, sounds, lights and display) | * Interactive class teaching with volunteers
* Practical challenge: Make your own simple motor machine – write an algorithm to control it
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| *Using sensors* | * To teach children how a motion sensor works (INPUT/OUTPUT)
* How to use a motion sensor as a switch in an algorithm
 | * Challenge: Control a part of your algorithm using the movement sensor
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| *Tidy up* | * Keep work area tidy and replace equipment for future use
 | * Class tidies up!
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| *Gears and pulleys* | * Teach children how pulleys and gears work
 | * Teach and learn
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| *Model instructions* | * Teach children how to use the Lego instructions
* Review engineering skills
 | * Teach and learn
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| *Build* | * Use skills taught to build alligator Robot .
 | * Practical challenge
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| *Program* | * Use programming skills taught to write and algorithm to control the Robot alligator
 | * Practical challenge
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| *Design* | * Add/change Lego pieces to improve the alligator/add features.
 | * Practical challenge
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| *Tidy up and review learning targets* | * To self assess and review learning
* Careers in STEM subjects
 | * Class discussion
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