



K'NEX Generation

Workshop Guide

Classic K'NEX®

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Workshop Information (for information about workshop content please visit <https://www.knextgeneration.co.uk>)

Workshop	Age	Maximum number pupils	Responsible persons ³	Duration (mins)	Room size	Furniture	Power supply	Set-up (mins)	Turn-around (mins)	Clear-up (mins)	Other
Bridges	P4-7 ⁵	P4: 33 P5:33 P6:33 P7:33 Comp:25 S1: 30	1	60	Hall/Gym ⁴	25 chairs	Not required	45	10	20	None
Minibeasts	P4-7			75	Hall/Gym ⁴	3 chairs	Not required	45	10	20	
Wind Power	P4-7 ⁵			60	Hall/Gym ⁴	3 chairs 10 tables	Access to six 13Amp sockets	60	15	45	
Solar Power	P4-7			60	Hall/Gym ⁴ +tables	3 chairs 10 tables	Access to six 13Amp sockets	60	15	45	
Programmable Robots	P5-7 ²			75	Hall/Gym ⁴	3 chairs	Not required	45	15	20	
K'NEX Maths	P5-7 ² S1			60	Hall/Gym ⁴ +tables	3 chairs 10 tables	Not required	60	15	30	
K'NEX Enterprise	P6-7			180	Classroom/ Hall/Gym ⁴	Chairs & tables	Access to one 13Amp socket	60	60	30	Some stationery supplied by school

1. P7 can be included with composite classes
2. P4 can be included with composite classes
3. Refers to minimum number of persons provided by the school, who MUST remain in the workshop at all times to comply with Disclosure requirements and K'NEXT Generation Health & Safety policies and Insurance. More helpers are always welcome. Extra support for ASN pupils provided by the school at school's discretion.
4. Space needs to be at least the size of a badminton court.
5. Can be adapted for P1-7 composite class.

Curriculum for Excellence 1

All K'NEXT Generation workshops are designed to support, complement and enhance the Curriculum for Excellence (CfE).

The scope and ethos of the workshops use the Principles, Values, Purposes and Cross-cutting themes of CfE as their foundation:

- Principles – Challenge & enjoyment, Breadth, Depth, Progression, Personalisation & choice, Coherence and Relevance
- Values – Wisdom, Justice, Compassion and Integrity
- Purposes – Successful learners, Confident individuals, Responsible citizens and Effective contributors
- Cross-cutting themes – Sustainability, Enterprise, Creativity and Citizenship,

K'NEXT Generation workshops are cross-curricular and provide opportunities to explore principles and concepts in the following curriculum areas:

- Health & wellbeing, Languages, Mathematics, Sciences, Social Studies, Expressive Arts and Technologies.

The workshops focus particularly on “STEAM” subjects:

- Science, Technology, Engineering (and Enterprise), Art and Mathematics (and Numeracy).

Workshop content is designed and built around the Experiences & Outcomes (E&Os) and the Benchmarks of CfE at Early, First, Second and Third levels (see following page for details).

The workshops employ hands-on, challenge-based, active learning which provides opportunities for pupils to develop their teamwork skills, resilience and creativity.

K'NEXT Generation aims to provide workshops that are fun and challenging and that help to develop skills for life.

Curriculum for Excellence 2: Experiences & Outcomes (E&Os) and Benchmarks

Workshop	Health & Wellbeing (HWB)	Modern Languages (MLAN)	Literacy & English (LIT)	Mathematics (MTH)	Numeracy (MNU)	Sciences (SCN)	Social Studies (SOC)	Expressive Arts (EXA)	Technologies (TCH)	
Bridges	2-11a 2-14a 2-20a 2-23a 3-11a 3-14a 3-23a	2-01b 2-03a 2-05a 2-06a 3-01a	2-02a 2-06a 2-10a 3-02a 3-10a					2-06a	2-09a 2-12a	
Minibeasts						2-01a			2-09a 2-12a	
Wind Power						2-10b	2-04a 2-07a 2-14a 2-20b		2-08a	2-06a 2-07a 2-09a 2-12a
Solar Power							2-04 2-07a 2-14a 2-20b		2-08a	2-06a 2-07a 2-09a 2-12a
Programmable Robots						2-17c				2-13a
K'NEX Maths						2-03c 2-15a 2-16a 2-18a 2-19a 3-15a 3-18a 3-19a	2-03a 2-09a 3-03a			
K'NEX Enterprise							2-09c			2-22a

The workshops support the E&Os by providing a relevant practical activity, however, the workshops may not provide the complete experience as detailed in the Benchmarks.

Follow-on Activities 1: Pupil review template for Second & Third Level pupils.

My name _____

Workshop name _____

Date _____

My team mates

I learned

Problems we had

How we solved them

We made

Skills I used

Next steps...

Comments/ideas/thoughts

Success criteria

Follow-on Activities 2:

1. Repeat challenge with K'NEX available in school adjusting time allowed and/or change team-members to share learning.
2. Give each K'NEX part a monetary value and carry out a costing exercise for models built.
Design spreadsheets to do the calculations.
Use the K'NEX User Group shop to obtain the actual prices for K'NEX components (beware this is a live web page with a checkout-out facility!)
<https://www.knexusergroup.org.uk/en/knex-parts-classic.html>
3. Use photographs/videos taken during workshop to:
 - a. review what was built and discuss improvements
 - b. make a poster or PowerPoint presentation for parents/other classes/assembly showing what the class achieved and what they learned during the challenge.
4. Design and draw annotated plans for a robot that can carry out a task that will help people in developing countries (following Programmable Robots workshop).
5. Carry out an internet research project on “Renewable Power in Scotland” and compile an illustrated report (following Wind & Solar Power workshops).
6. Visit K'NEX User Group website and download the free “Maths Activities Guide” from the Free Resources page (following K'NEX Maths workshop)
<https://www.knexusergroup.org.uk/en/knex-free-downloads.html>
7. Visit K'NEX User Group website and download the free “101 Challenges Guide” from the Free Resources page
<https://www.knexusergroup.org.uk/en/knex-free-downloads.html>

K'NEXT Generation Risk Assessment - K'NEX workshops

(not all items/actions apply to all workshops)

Hazard		Initial Assessment				Control	Residual Risk		
Action/Item	Hazard Effect	Population at Risk	Hazard Severity	Likelihood of Occurrence	Risk Rating	Controls required	Hazard Severity	Likelihood of Occurrence	Risk Rating
Carrying boxes, during set-up & clear-up	Muscle injury/strain	1 6 (lifting helper)	4	2	8	<ol style="list-style-type: none"> 1. Correct lifting procedures employed. 2. Two people to carry heavy equipment when required. 3. Lifting/moving aids used when appropriate/available. 	4	1	4
Moving furniture during set-up & clear-up	Muscle injury/strain	1 6 (lifting helper)	4	2	8	<ol style="list-style-type: none"> 1. Correct lifting procedures employed. 2. Two people to move heavy equipment when required. 3. Lifting/moving aids used when appropriate/available. 	4	1	4
Electrical presentation equipment set-up	Muscle injury/strain	1	4	2	8	<ol style="list-style-type: none"> 1. Correct lifting procedures employed. 2. Correct set-up procedures followed. 	4	1	4
Electrical presentation equipment use	Electric Shock Fire	1 2 3 4	5	2	10	<ol style="list-style-type: none"> 1. All equipment regularly visually inspected. 2. All equipment PAT tested. 3. Residual Current devices used 4. All equipment well ventilated 	5	1	5

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Obstacles in aisles, work area and on floor	Trips and falls	1 2 3 4	3	2	6	1. All personal belongings to be cleared from work area. 2. No running allowed. 3. Equipment overspill on floor to be minimised. 4. Adult supervision.	3	1	3
K'NEX Rods	Penetration, stabbing wounds	2 3 4	4	2	8	1. Verbal warning given as necessary. 2. Adult supervision.	4	1	4
K'NEX Connectors	Finger pinching	2 3 4	1	2	2	1. Verbal warning given as necessary. 2. Adult supervision.	1	1	1
Small pieces of K'NEX	Choking	2 3 4	4	2	8	1. Verbal warning given as necessary. 2. Adult supervision.	4	1	4
Moving pieces of K'NEX	Hair/clothing entanglement	1 2 3 4	2	2	4	1. Verbal warning given. 2. Hair bands provided. 3. Loose clothing secured. 4. Adult supervision.	2	1	2
Scissors	Cutting/ stabbing injury	2 3 4	2	2	4	1. Pupils familiarity with equipment. 2. Adult supervision. 3. Verbal warning given as necessary. 4. Demonstration of safe used as necessary	2	1	2
Pens, pencils & rulers	Stabbing injury	2 3 4	2	3	6	1. Pupils familiarity with equipment. 2. Adult supervision. 3. Verbal warning given as necessary.	2	2	4

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CONT									
Plastic bags	Choking/ suffocation	2 3 4	5	2	10	1. Pupils familiarity with equipment. 2. Adult supervision. 3. Verbal warning given as necessary.	5	1	5
Testing/ Dismantling models	Flying pieces in eyes	1 2 3 4	4	3	12	1. Verbal warning given. 2. Adult supervision. 3. Appropriate time allocated for task completion. 4. Exclusion zone around testing area.	4	1	4
Batteries	Acid burns	1 2 3 4	4	2	8	1. Regular equipment checking & maintenance. 2. Batteries contained in compartments requiring a tool to open or are taped closed. 3. Adult supervision.	4	1	4
Batteries	Choking hazard	3 4	5	2	10	1. Batteries contained in compartments requiring a tool to open or are taped closed. 2. Adult supervision.	5	1	5
Batteries	Electric shock	2 3 4	2	2	4	1. Regular equipment checking & maintenance. 2. Batteries contained in compartments requiring a tool to open or are taped closed. 3. Low voltages used. 4. Adult supervision.	2	1	2
Loud noises	Fright	2 3 4	1	4	4	1. Responsible person consulted prior to use. 2. Verbal warning and demonstration provided.	1	2	2
Power cables	Tripping	1 2 3 4	3	3	9	1. Verbal warning given as necessary. 2. Adult supervision.	3	2	6

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CONT									
Laser pointer	Eye damage	1 2 3 4	4	2	8	1. Only used by trained presenter. 2. Never left unattended. 3. Only pointed away from audience, never toward or over.	4	1	4
Desk lamps	Burns	1 2 3 4	4	2	8	1. Verbal warning given, 2. Hot parts of lamps labelled clearly and demonstrated. 3. Pupils not required to touch hot parts. 4. Adult supervision	4	1	4
Desk lamps	Electric Shock Fire	1 2 3 4	5	2	10	1. All equipment regularly visually inspected. 2. All equipment PAT tested. 3. Residual Current Devices used. 4. All equipment well ventilated	5	1	5
Desk fans	Entanglement	1 2 3 4	2	2	4	1. Manufacturers guards in place and visually inspected regularly. 2. Verbal warning given. 3. Hair bands provided. 4. Loose clothing secured. 5. Adult supervision.	2	1	2
Desk fans	Electric Shock Fire	1 2 3 4	5	2	10	5. All equipment regularly visually inspected. 6. All equipment PAT tested. 7. Residual Current Devices used 5. Low voltage equipment used	5	1	5
Signed <i>Ann Larkham</i>								Date 01/08/2019	

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Population Codes: 1. Employees. 2. Paying public. 3. School/General groups. 4. Visitors (non-paying). 5. Contractors. 6. Others (specify).

Contact for additional help or support: info@knextgeneration.co.uk

Useful links:

K'NEXT Generation: <https://www.knextgeneration.co.uk/>

K'NEX User Group: <https://www.knexusergroup.org.uk/en/knex-user-group.html>

K'NEX: <https://www.knex.com/>

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