Unit 2 Build It

Curriculum Links

'Build It' links together several curriculum areas and develops many key skills. Each school will have staff, children and parents working on this project with different skills and areas of expertise. Better learning will take place if you adapt and modify 'Build It' to suit your school's needs and interests. With this in mind these following curriculum aims and objectives are broad and suggested as guidance only. The teaching materials in this pack are supported by two practical 'hands-on' training sessions.

Science

Children and parents will:

- be curious about things they observe, and experience and explore the world about them with all their senses
- learn about ways of thinking, finding out about and communicating ideas
- think creatively about science
- develop language skills through talking about their work and the work of others, listening to their ideas and treating these with respect
- develop a respect for the environment
- learn that a complete circuit is needed for a device to work
- learn how switches are used to control a circuit

Design and Technology

Children and parents will:

- be creative and innovative when designing and making
- explore attitudes towards the made world and how we live within it
- work both independently and with others, listening respectfully
- be creative, flexible and show perseverance and enjoyment
- develop an understanding that all people are equal regardless of age, race, gender or ability and that there needs to be alternative solutions to meet the needs of individuals and groups of people
- practise practical skills, such as cutting, joining, fixing and connecting

Geography

Children and parents will:

- show an interest in their surroundings and in the variety of human and physical conditions
- develop an informed concern about the quality of the environment and the future of the human habitat
- consider why physical and human features are arranged as they are in a place or environment
- focus on geographical questions like *What is it like? How did it get like this? How and why is it changing?*
- develop and use geographical enquiry skills, use geographical words, maps, photographs.
- develop a respect for the environment and be encouraged to evaluate their own and others' effect or impact on it.

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Teachers Notes

Activity One

Surveying the local area using the De Bono 'thinking hats'

The aim of this activity is to use three of the De Bono ‘thinking hats’, red, purple and green to help children and parents think about the area they live in and how it could be improved. This activity should take an hour and will set the scene for the practical work that follows.

Preparation

- A collage of photographs showing key locations in the local area eg. post office, café, houses, park, schools, places of worship and undeveloped land, or use a fictitious alternative.
- A red, green and purple hat or paper cut outs.
- Speech bubbles in red, purple and green.
- What if…? Statements
- Inspirational photos of buildings, parks, restaurants etc

Warm Up Game

Pass a ball around the group, the person holding the ball says, *“In our local area there is a ….”* The following person has to remember all the previous items and add their own. Eg. *“In our local area there is a football stadium, a fire station and a park”* No repetition is allowed but help can be given.

Main Activity

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1. The Red Hat

Display the red hat and explain that this represents their ‘gut’ reactions and feelings. Using your collage of photographs of the local area facilitate a discussion between families (working in groups of four) about their likes and dislikes of the key features. Ask for jottings on the red speech bubbles. Collate these speech bubbles onto a 'mind map' and summarise feelings and attitudes towards their local area.

2. The Purple Hat

Display the purple hat and explain that if you want to improve the local area then you need to think about different issues and the impact changes might have. Use the ‘What if…?’ cards to start a discussion about issues, such as the needs of different age groups. Ask for jottings on the purple speech bubbles and add these to the mind map.

3. The Green Hat

Display the green hat and explain that this hat allows us to think creatively about developing the local area. Show examples of inspirational architecture, new parks and renewable energy sources, encourage the groups to think of creative ideas to improve their local area taking into consideration previous discussions about likes, dislikes and issues. Ask for jottings on the green speech bubbles and add these to the mind map.

4. Build-It Cards

Use the green speech bubbles to compile a list of the top 10 new developments they would most like in their local area.

Concluding Game

Pass a ball around the group, the person holding the ball says*, ”In our local area I would like to have a…”* The following person has to remember the previous items and add their own.

Teachers Notes

Activity Two

Building a New Local Area

The aim of this activity is for the families to work together to design and make new buildings or features which would improve their local area. They will revisit how to make an electrical circuit using switches, motors and bulbs. The practical work will take a minimum of four hours to complete.

Preparation

- Role cards and badges
- Separate tables with supplies of electrical equipment and building materials
- Build-It cards
- Computer with internet access
- Base map, drawn by facilitator
- Examples of ready made circuits

Warm Up Activity

Spaghetti Towers

Using dried spaghetti, small marshmallows and jellied sweets, construct a stable structure. Try making squares and cubes, triangles and pyramids to investigate which shapes are the strongest. You could limit the number of spaghetti strands and sweets given out, challenging groups to make the tallest structure or a structure that most resembles a famous building.

Main Activity

Working in groups of four the participants will choose one or two items from the 'Build-It' cards that they would like to make. Introduce the idea that their designs could be environmentally friendly and demonstrate how to use the EON website for ideas on conservation of energy and renewable energy sources. If possible allow time for the groups to explore this website. To aid team work each person in the group could take on a leading role; these are chief resource manager, chief designer, chief builder and chief electrician. The facilitator will be chief timekeeper. Explain that these roles do not exclude anyone from helping on the different tasks.

Show the base map onto which they will place their finished designs and discuss where each item being made should go. Demonstrate the techniques needed for making the buildings such as how to make a right angle corner join for a building. Recap how to make an electrical circuit and display circuit diagrams and ready made circuits with switches or motors for support.

Participants work in their groups to make the items on their Build-It cards, paying attention to their ‘role’ within the group and ensuring they use an electrical circuit where appropriate.

When the structures are complete place them on the base map. Evaluate the design and methods used and test the electrical circuits. Encourage discussion on how the new local area could be supplied with renewable energy and how it is possible to save energy. Revisit the 'thinking hats' and with the red hat consider feelings about their proposed new local area?

Extensions
See follow up activity 'Bringing your own town to life'.
Write a guide book to the new local area.
Use the internet to research renewable energy.

Concluding Activity

Discuss what it would be like to live without electricity?
Discuss plus, minus and interesting points.

Hand out and discuss the evaluation sheet for the Build-It activities.