Pod-project Manual

Introduction

This manual explains how our scheme works - with children forming their own groups (pods) to work on particular projects. The whole 'Cabinets & Pods' format is intended to be fairly informal, but it seems worthwhile considering the following:

How to explain to children what we mean by a 'project', in terms of structure and processes involved.

How to discuss the different kinds of thinking involved in overcoming problems and developing ideas throughout each project.

How much to intervene in pod-projects that do not seem to be making much progress.

We also consider how to discuss such ideas with young children (mainly aged 7-11) using 'archetypal' characters to represent the different styles of thinking and learning required in the different stages and activities within each project. Children will already be familiar with many of the characteristics associated with the four roles we have chosen - Explorer, Detective, Builder and Story-maker from many stories, games, TV programmes and films - providing a foundation for discussion of how such characters' thinking is related to the way the characters live and work in their real or fictional worlds.

Contents

Pod-Project Overview–describes how the *roles* outlined in the following pages could fit together within each project.

Definitions – explains the vocabulary we are using to describe the project.

Role description pages – Explorer, Detective, Builder and Story-Maker. These pages describe the different kinds of roles children might take on as they engage with their projects, and the different qualities they will need to be successful in such roles and activities.

The Role of Assistants & Experts – describes the way we would like adults to interact with children, when helping in the project.

Pod-project overview

In order to discuss with children the structure of projects and the different kinds of thinking and learning involved - we have attempted to describe what constitutes a project, in terms of the 'roles' played by children at different stages of the project. These roles are described in more detail on the following pages.

In an idealised project the order of roles taken by children would be as shown in this diagram.

The 'Explorer' stage involves children producing a rough map to act as a guide to the rest of their project.
In the 'Detective' stage, children research the project (and required skills) in detail.
In the 'Builder' stage they build/make whatever their project is designed to produce.
The final stage of 'Story-Maker' allows the children to reflect on the progress of their project and develop a 'story' of it for presentation to an audience – for example as a written text, a play, web-pages for the Cabinet web-site or as 'Idea Sheets' for use by other children.

In real projects the flow from one role to another is likely to take a more complex route with many 'eddies' as children backtrack to reconsider the project as they hit problems. For example it may be that while doing research in the 'Detective' phase they come to realise that the original plan developed in the 'Explorer' phase is going to be impossible to achieve; they will need to revisit the 'Explorer' phase and map out an alternative route for their project. The Detective phase may be revisited as children need to do further research to solve particular problems encountered later in their project.
It is important that both children and adult-assistants view this process of looping back to cope with problems as a normal part of a project.
Children need to know that failure is a natural part of learning – a project that proceeded smoothly with out any set-backs would imply an unadventurous and dull plan in the first place!
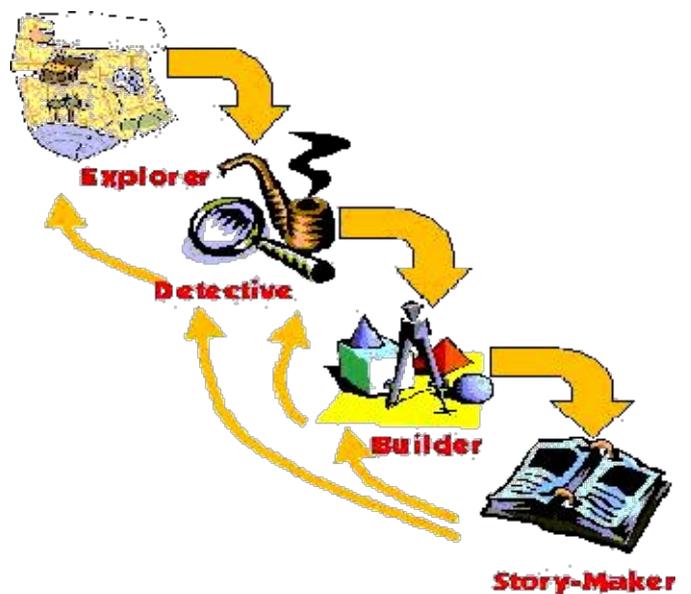
Definitions

Cabinet of Curiosities – The cabinets around the school fulfil several functions:

- to contain strange and interesting objects that will inspire children's curiosity and encourage them to form pods to
- develop projects around their own interests and curiosities.
- to display examples of on-going pod-projects.
- to contain the stories and idea-sheets produced at the end of projects

Pod – a group of children working together on a project.

Roles - we want children to be aware of the different kinds of thinking and learning involved in the various tasks required by each project; also to develop an understanding of which kinds of thinking are most useful in particular situations, and relevant to solving particular types of problems.
To help make these ideas more explicit – we have designated four different roles that children will 'play' as they carry out their projects – Explorer, Detective, Builder, Story-Maker – these roles could be used as components in the pod-planners to help organise the project, and may be useful when children need to assign tasks to each other within each pod. There are four sheets, intended for use by the children as reminders, which explain what characteristics of behaviour each of the roles requires.

Assistants – firstly to explain the way the projects will work and discuss the concept of 'roles' with children. Other assistants (teachers, parents, older children) will be needed to help children develop various skills that are necessary depending on the nature of the project – for example help with using a microscope, searching the internet more effectively, or soldering components together. We hope to develop a notice-board system so that children can advertise for assistants in advance.

Expert – anyone with particular expertise invited to provide help (on a specific problem) or inspiration. This might, for example, be a one-off visitor who is an expert in Roman archaeology, or an e-mail correspondence with the relative of one of the children in the pod, who can help with information on 19th Century toys.

Stories - the Story-Maker role that occurs at the end of each project is an opportunity for children to reflect on what they have learned during the project and to shape this experience into a story that is meaningful to themselves and others (an audience). The importance of preparing the story for others lies not only in providing a record of their work, but in requiring the greater reflection needed to communicate a story to an audience successfully - what are the significant parts of the story? – where did we start from? - which problems were hard? -how did we overcome these problems? – what did we learn about how we learn? - what metaphors and analogies can we use to reinforce meaning in the story? - what will the best media to use to get this story across to an audience? The story does not need to take a written form – it might be a video recording, a song, a piece of 'box-art' in one of the cabinet drawers, a play or a set of web-pages for our Cabinet of Curiosities web-site.

Idea Sheet – these are sheets produced by pods based on work done in their projects for use by other children. Where this work is relevant to particular curriculum subjects, it may be incorporated into classroom use. The sheets may take the form of puzzles, quizzes, ideas to follow-up – anything that will baffle, intrigue or inspire others.

Explorer
In search of new knowledge

In this role you will explore for new knowledge and ideas. Explorers have only have a rough idea of what they will find in the area they will be exploring - their curiosity involves finding new things on a grand scale - a new land, a city of gold. Because they are travelling into unknown areas, they have little to guide them - perhaps only sketches, rumours, legends, visions or dreams. They are not afraid to try out lots of new ideas, knowing that many will fail but a few may turn out well - sometimes in ways they could not have expected.
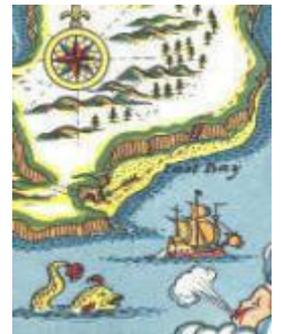
What explorers need:

Curiosity - about new knowledge and ideas
Boldness - to take a leap into the unknown
Determination - to cope with unpredictable hazards
Persuasiveness - persuading other people to provide resources and travel with them
Serendipity - being able to recognise and make use of accidental and unexpected discoveries

Explorer's role in the project

Think about things that you would really like to find out about. Try brain-storming ideas with your fellow explorers - see which of your wild schemes interest others. Don't worry about too much detail at this stage- if you are going in search of entirely new knowledge, you can't really plan your journey precisely, but do make a rough map of where you want your project to take you. Remember many explorers end up discovering something rather different from what they set out to find!

Think about the *scale* of your project map - how big an area are you exploring? For example, if you are interested in bees -do you want to study 'how do bees carry pollen?', 'how do bee-hives work?' or 'how have humans thought & written about bees throughout history?'. Remember you can always re-draw your map at later stages in your project.

What kinds of people are explorers?

Apart from the explorers who mapped out our world, such as Christopher Columbus, there are space-explorers (Astronauts) and idea-explorers, such as Darwin and Einstein, who mapped out whole new areas of ideas for other people to explore in detail.

Detective

Using knowledge to solve problems

In this role you will use knowledge to solve a particular problem. If explorers are great searchers - detectives are great re-searchers; they go over things carefully again and again to get the details exactly right. They are sceptical and test everything. It is the tiny detail that no one else has noticed that lets Sherlock Holmes solve the case!

What detectives need:

Curiosity - about how to solve a problem
Carefulness -attention to detail, searching for patterns and anomalies, filtering out irrelevant information
Patience - to collect information and consider all the possibilities, re-testing theories against reality
Scepticism - checking for themselves rather than taking other people's words as fact
Contacts - gaining information from or trading information with a network of other people

Detective's role in the project

Identifying an insect, measuring how fast water evaporates from a puddle or piecing together a broken pot - this is detective work. You will require different tools depending on what sort of detective-work you are doing – a magnifying-glass, a microscope, a telescope, a computer, a light-meter – all sorts of different devices for measuring and examining things. You may need to search the library, the internet or the sea-shore. You may need to perform experiments to test out your ideas. Detectives make careful notes of what they find.

What kinds of people are detectives?

Police-detectives, forensic scientists, doctors (trying to detect your illness), scientific researchers, collectors (tracking down a rare stamp or book).

Builder
Using knowledge to change the world around you

In this role you will use existing knowledge to build or make something new in the world. This might be making something that is needed by copying an existing plan /pattern, or it might be creating something entirely original - an invention.

You might need to build something to help you survive - shelter, defences or food-storage. You might want to create something that makes your life more comfortable, productive or fun - new technologies or new ways of making and trading products.

What builders need:

Curiosity - about how the world can be changed or improved
Creativity - to play with new combinations of ideas and make the best use of available materials
Skills - how to use tools to make or build successfully, and how to make suitable tools
Cooperation - planning and working together in a team

Builder's role in the project

Your project might involve making a robot, a garden, a pop-up book, a bird-box, a web-site, or a game. It might involve creating a wild-garden area, setting up a website to promote energy-saving ideas, or developing fund-raising projects for a charity. You may need special tools, materials and skills to make your project work well - so you may need to arrange for adult/expert help or advice.

What kinds of people are builders/makers?

Architects, builders, landscape-gardeners, decorators, designers, merchants/traders (building companies), engineers, inventors.

Story-maker
Using knowledge to change yourself or others

In this role you will create a story that tries to make sense of how your project worked, and how this relates to the way that the wider world works.
This may not necessarily be a written story - you could express your ideas through making a painting, sculpture, piece of music, drama (play or video), simulation game or by constructing a piece of 'box-art' for one of the Cabinets.

What story-makers need:

Curiosity - about how people work - feel, think, learn and make sense of the world.
Sensitivity - to recognise new ways of linking ideas with each other and with their consequences.
Judgement - to decide what are the important parts to include in the story, what to leave out; to judge how other people will react to your story.

Story-maker's role in the project

How can you make a story of your project that explains -

What were you curious about?
What roles did you play - explorer, detective, builder?
What problems did you have to overcome?
What did you learn from how 'experts' helped on your project?
What has changed in the world (what did you make or build)?
What has changed in you (what have you learnt)?

What metaphors and analogies could you use to convey the meaning of your story to an audience?
How can you use this story to make 'idea sheets' for the Cabinet, that will inspire other children to take an interest in the topic of your project?
How will this story fit into your 'library' of learning? What new story will you start to construct next?

What kinds of people are story-makers?

Novelists, journalists, artists, sculptors, playwrights, film-makers, song-writers.

The Role of Assistants & Experts

The following article reproduced from *Educational Psychology Vol 13 Nos.3 & 4* provides a useful basis for discussion of the roles to be played by assistants and experts in our project. The article summarises research in thinking skills led by *Wendy M. Williams and Robert J. Sternberg* of Yale University and details the kinds of adult-child relationships that we hope to develop in our project.

Developing Practical Intelligence - 7 Lessons for Helping Children Make the Most of Their Abilities

Through observations conducted during the Practical Intelligence for School project, the following guidelines were shown to have significant impact on children's development and potential for success:

1. Teach children that the main limitation on what they can do is what they tell themselves they can't do. Children can do pretty much what they make up their minds to do. Tell children they have the ability to meet most challenges. What they need to decide is how hard they are willing to work to meet these challenges.

2. Remember that it is more important for children to learn what questions to ask and how to ask them than to learn the answers to questions. Do not encourage students to view the teacher as the one who should ask questions and the child as the one to answer them, or to believe that the teacher's role is to teach them facts. What matters most is not the facts children know, but rather their ability to use those facts. The ability to ask good questions can be either fostered or stifled by teachers. How teachers respond to children's questions is important; one kind of response is helpful while another is less helpful in developing their thinking ability. Williams and Sternberg describe a hierarchy of responses adults exhibit when responding to children's questions. The authors stress that adults need no special abilities to be helpful to children, just an affirming attitude. The lowest-level response is a rejection of the child's question, such as "Be quiet!", "Don't ask so many questions," or "Don't bother me." Only slightly less hurtful, the adult may answer, but in a meaningless way such as rephrasing the question as a statement. Slightly better would be a direct response or an admission of ignorance. A more helpful response is to seek the answer through another authority, for example by showing the child that you can find the answer to questions by looking them up. A more stimulating response is to explore various explanations with the child. In addition, demonstrating how to evaluate various explanations and following through to gather more information to distinguish between explanations actively encourages thinking skills in children.

3. Help children find what really excites them, bearing in mind that it may not be what really excites you or what you wish would really excite them. Williams and Sternberg warn that helping children find what they really love to do can be frustrating for adults who mistakenly encourage children to choose something they believe the child should want to do rather than what the child really wants to do. People who really excel in life are almost always people who love what they do.

4. Encourage children to take sensible intellectual risks. This means helping children develop a sense of when to take risks. Risks often involve the possibility of making a mistake in public. Since we learn from mistakes, a child who is afraid to risk making a mistake, will not be fully engaged in learning. Developing a tolerance for failure is associated with higher achievement. Children need safe environments in which they won't be ridiculed by peers or adults for wrong answers. Children who believe that intelligence is a fixed entity one is born with also try to avoid mistakes and are embarrassed when they fail because they believe it is a reflection of their intelligence.

When children develop a concept of intelligence that is incremental - that intelligence is increased as we learn and experience the world -they can regard mistakes as a natural condition of learning.

5. Teach children to take responsibility for themselves -- both for their successes and for their failures. Do not allow children to look for an outside "enemy" who is responsible for their failures. Refrain from constant urging since this communicates that the child is not self-motivated. Help children develop their own internal motivation. One way to develop this inner sense is to serve as a role model for it. Nudging a child when required can be successful if he is not pushed constantly. When you give children tasks to do, expect them to do the work adequately and not just to get by with the minimum.

6. Teach children how to delay gratification, to be able to wait for rewards. Emphasize the long term; don't give immediate rewards or allow children to expect immediate rewards. Teach children that the most important factors in becoming an expert in anything are hard work and practice. Hard work is risky, because there is no guarantee that it will yield results. By working on a tangible task for many weeks or months, children learn the value of making daily incremental efforts.

7. Teach children to put themselves in another's place. Teach children the importance of understanding, respecting and responding to others' points of view. Many bright children never succeed in life because they never develop practical intelligence. They do well in school and on tests, but they never learn how to get along with others and especially to see things as others see them. Williams and Sternberg write that we need to pay special attention to these issues with boys, because on average, girls tend to be more sensitive to feelings and to understand them better than boys do. Defensiveness impedes intellectual development. Children need to learn that criticisms can be constructive and can be used to our advantage. Advise them to think about criticisms before rejecting them.