This book introduces children to a number of basic project management concepts (or simply *project concepts*, if you prefer).

Resources and Downloads

www.projectkidsadventures.com/resources

School Curriculum Applicability

The concepts covered in this book include independent learning and aspects of technology, specifically:

- Characteristics of technology and technological outcomes.
- Technological modelling, products and systems.
- Planning, identifying resources, skills and stages required to complete an outcome.

The relevant school curriculum standards include, at a minimum:

New Zealand

The New Zealand Curriculum (2007), **Technology**

- Nature of Technology [Level 1,2]
- Technical Knowledge [Level 1,2]
- Technological Practice [Level 1,2]

Australia

Australian Curriculum [ACARA], **Science**

Year 5

- ACSHE083 – Scientific understandings, discoveries and inventions are used to solve problems
- ACSIS088 – Uses equipment and materials safely, identifying potential risks
- ACSIS093 – Communicates ideas, explanations and processes in a variety of ways

Year 6
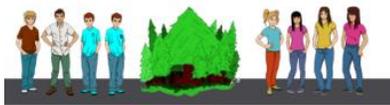
- ACSIS101 - Communicates ideas, explanations and processes in a variety of ways
- ACSIS105 - Uses equipment and materials safely, identifying potential risks

United States

National Standards, **Technology**

- NT.K-12.1 Basic operations and concepts
- NT.K-12.6 Technology problem-solving and decision-making tools

United Kingdom

Primary Curriculum

**Design and Technology Key Stage 1**

1. Developing, planning and communicating ideas (a,b,c,d,e)

2. Working with tools, equipment, materials and components to make quality products (a,c,d,e)

3. Evaluating processes and products (a,b)

5. Breadth of study (a,b,c)

Design and Technology Key Stage 2

1. Developing, planning and communicating ideas (a,b,c)

2. Working with tools, equipment, materials and components to make quality products (a,b,d,e)

3. Evaluating processes and products (a,b,c)

4. Knowledge and understanding of materials and components (a,b,c)

5. Breadth of study (a,b,c)

Project Management Concepts

Amanda's father covers the basic project stages that are common to every successful project, regardless of your preferred terminology or system.
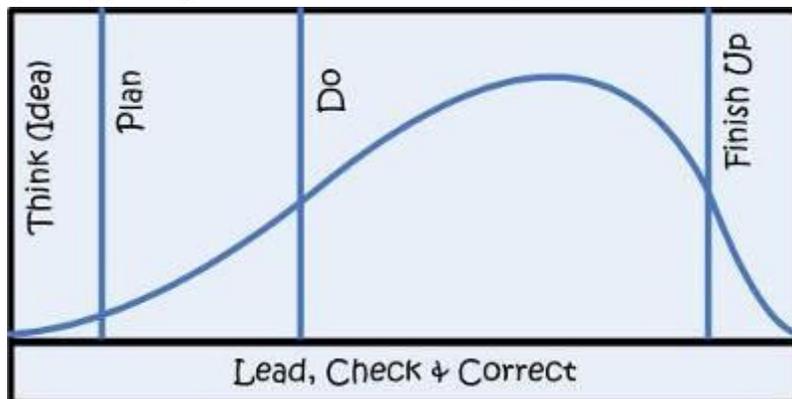
- Initiation (Idea / Think)
- Planning (Plan)
- Execution (Do)
- Closeout (Finish Up)
- Project Control (Lead, Check & Correct)

In this book, the children attempt to start off planning their Halloween project with "exactly how they did it before", reviewing the diagrams from the Tree House project. However, Alice soon recognizes that this is preventing them from moving forward; they need to take a step back from "Plan" back to "Idea/Think" and do some brainstorming on *what* they would like to have for their Halloween display, rather than focus the details of *how* they may do their project. This can be a common problem when starting new projects - you need to have the brainstorming sessions **first**. There will be time enough to plan - once you have an idea what your project is about!

Once the ideas start flowing and they agree on the basic scope and approach, they get down to planning, building on the lessons they learned on the last project. Unfortunately, they soon find out that their plans are not achievable - at least not in the way they originally envisioned. With the clock ticking, they have to quickly re-plan, get creative and figure out other ways to design the haunted house, and get their project back on track.

Amanda soon realizes that this project is more complex than the Tree House, with a number of different activities happening all at once, and multiple dependencies across tasks. With a fixed deadline looming, she asks her father for some more help and learns additional techniques for tracking more complex projects, including adding *duration estimates* to the *sequence diagram* (network diagram), in order to determine the *critical path* (the longest sequence of activities that drives the overall project duration). This turns out to be extremely helpful to the Project Kids, as this let them see that the project was not going to finish on time, unless they made some adjustments.
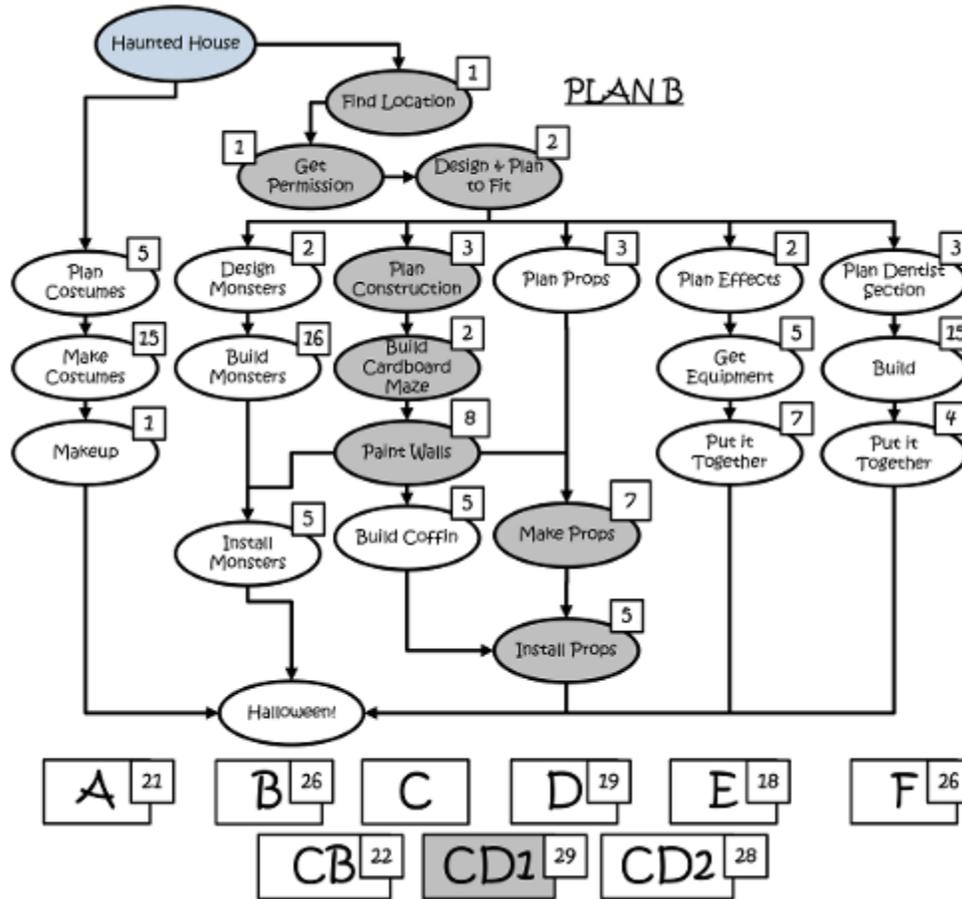
Following other unexpected problems, they finally run into the hard reality that they won't be able to get it all parts of the Haunted House done on time. They learn the project concept of balancing **Time** (Schedule), **Cost**, **Scope** and **Quality**, and deciding which can be changed, and which cannot in order to successfully complete the project.

This book also includes a visual timeframe reference in most chapters (a calendar with completed dates crossed off, days remaining and an indicator of the current project phase).

Notes for Parents & Teachers
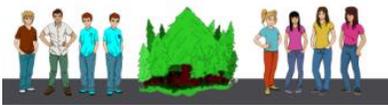
This simple, familiar visual is intended to help the children to be more aware of time passing as they progress through the book, and intentionally add a little bit of deadline anxiety - "only 16 days left!". Young or old, we all seem to work better when we have a deadline and visibility of time elapsing.

A number of other project concepts are also introduced, either directly or indirectly in the story, including:

- **Scope Management/ Requirements** (A Crazy Idea, That's Not Scary, I Vant it All, Ghost of a Chance)
- **Time Management** (Crypt Keeper, Deader Than Dead, Ghost of a Chance)
- **Cost / Budget** (Dollar Store Blues, Crypt Keeper)
- **Resource Management** (I Vant it All, Dollar Store Blues, Monster of a Problem, Terrifying Taxidermy, Tooth and Claw)
- **Teamwork / Human Resource Management** (Count Me Out!, That's Not Scary, I Vant it All, Monster of a Problem, Ghost of a Chance, The Noose is Loose)
- **Change Management** (Dollar Store Blues, Monster of a Problem, Deader than Dead, Ghost of a Chance)
- **Risk Management** (Monster of a Problem, Deader than Dead, Abandon Hope)
- **Quality Management** (Troublesome Teeth, Ghost of a Chance)
- **Lessons Learned** (That's Not Scary, All's Well That Scares Well)

One final note - the "Work Breakdown Structure" (WBS) is sometimes modeled as a "Product" or "Deliverable" Breakdown Structure, with no verbs (i.e. no tasks or actions, just what the outcomes need to be).
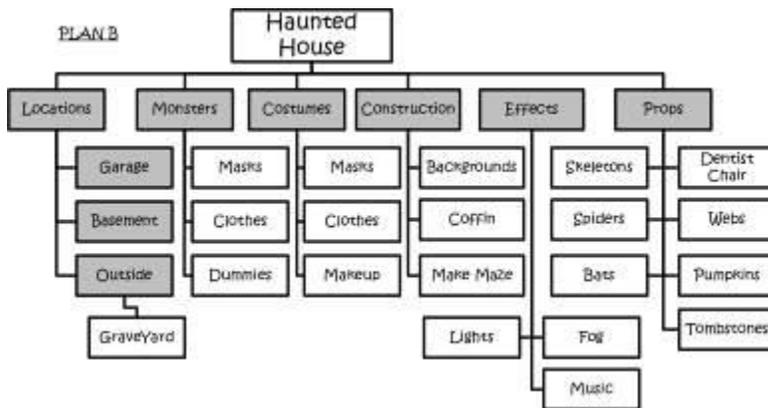
In Plan B, the WBS more closely follows the deliverable model.

Often, it is helpful to have the WBS include a combination of higher level deliverables (nouns) and key tasks at the lowest levels (including verbs), which can help with communicating your plan to a wider range of people. (See <u>Once Upon a Time: Your Project is a Story</u> for further information and examples.)
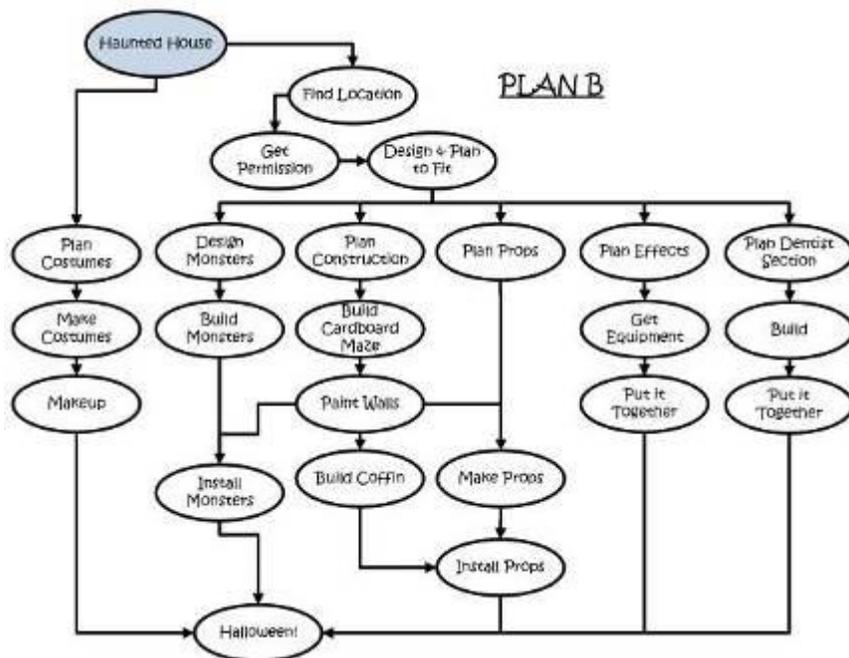
The Sequencing diagram and the Gantt chart generally end up with the blending of Deliverables and Tasks, so it is up to the specific project if it is helpful to include this task detail in the WBS itself.

With the children's Haunted House Project, it would be very easy (and appropriate) to develop multiple-level WBS, Gantt and Sequencing diagrams, however they would not be readable at the scale of this publication - so there are some trade-offs in the lesson. The concepts are covered, but the examples remain at a high level for readability. You can also refer to the website (http://projectkidsadventures.com/resources) for more complex examples.

Preparing Students with Life Skills for a Global Society: The "Four Cs"

Reference: Preparing 21st Century Students for a Global Society
http://www.nea.org/assets/docs/A-Guide-to-Four-Cs.pdf
National Education Association (NEA) - Dennis Van Roekel

Today, students have almost unlimited access to information from libraries, textbooks, and digital materials. On the other hand, many students lack the proper skills to benefit from this abundance of information.

In the paper ***Preparing 21st Century Students for a Global Society***, the NEA stresses the importance of developing the "Four Cs" in our modern global economy (*Creativity*, *Communication*, *Collaboration* and *Critical Thinking*). The 1950's "Three Rs" (**R**eading, W**r**iting, **A**rithmetic) model is no longer sufficient for the students of today; they need to be prepared to work in a collaborative global workplace.
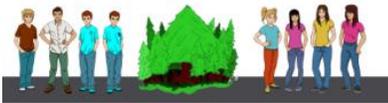
As educators prepare students for this new global society, teaching the core subjects - math, social studies, arts - must be enhanced by incorporating the life skills needed to be successful citizens and leaders of tomorrow.

One advantage of Project-based learning is that it addresses each of these four "C" areas, helping students develop strengths and skills that will support them in life and in their later career. This has been demonstrated successfully in a number of primary school education systems including MOTE (Mantle Of The Expert), originally developed in the UK in the 1980's by Prof. Dorothy Heathcote. (www.mantleoftheexpert.com)

As a Project Management book for children, this story and the lessons it delivers support the objectives of the "Four Cs" skills development.

Defining the "Four Cs"

The "Four Cs" represent four critical skills that complement, but do not replace, the other skills being taught in schools today. Here are the definitions of the "Four Cs" as defined in the *Partnership for 21st Century Skills* (P21). A more detailed exploration of this topic, including a discussion of how this book supports each of the "Four Cs", can be found on the Project Kids Adventures website, under *Resources* (www.projectkidsadventures.com/Resources).

1. **Critical Thinking and Problem Solving**, which includes developing the ability to

Reason Effectively

- Use various types of reasoning (inductive, deductive, etc.) as appropriate to the situation

Use Systems Thinking

- Analyze how parts of a whole interact with each other to produce overall outcomes in complex systems

Make Judgments and Decisions

- Effectively analyze and evaluate evidence, arguments, claims, and beliefs

- Analyze and evaluate major alternative points of view

- Synthesize and make connections between information and arguments

- Interpret information and draw conclusions based on the best analysis Reflect critically on learning experiences and processes

Solve Problems

- Solve different kinds of unfamiliar problems in both conventional and innovative ways

- Identify and ask significant questions that clarify various points of view and lead to better solutions

2. **Communication**, which includes developing the ability to

Communicate Clearly

- Articulate thoughts and ideas effectively using oral, written, and nonverbal communication skills in a variety of forms and contexts

- Listen effectively to decipher meaning, including knowledge, values, attitudes, and intentions

- Use communication for a range of purposes (e.g. to inform, instruct, motivate, and persuade)

- Use multiple media and technologies, and know how to assess impact and their effectiveness a priori

- Communicate effectively in diverse environments (including multilingual and multicultural)

3. **Collaboration**, which includes developing the ability to

Collaborate with Others

- Demonstrate ability to work effectively and respectfully with diverse teams

- Exercise flexibility and willingness to be helpful in making necessary compromises to accomplish a common goal

- Assume shared responsibility for collaborative work, and value the individual contributions made by each team member


4. **Creativity and Innovation**, which includes developing the ability to

Think Creatively

- Use a wide range of idea creation techniques (such as brainstorming)

- Create new and worthwhile ideas (both incremental and radical concepts)

- Elaborate, refine, analyze, and evaluate original ideas to improve and maximize creative efforts

Work Creatively with Others

- Develop, implement, and communicate new ideas to others effectively

- Be open and responsive to new and diverse perspectives; incorporate group input and feedback into the work
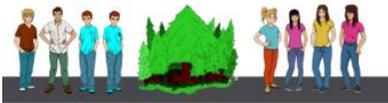
- Demonstrate originality and inventiveness in work and understand the real world limits to adopting new ideas

- View failure as an opportunity to learn; understand that creativity and innovation are part of a long-term, cyclical process of small successes and frequent mistakes

Implement Innovation

- Act on creative ideas to make a tangible and useful contribution to the field in which the innovation will occur