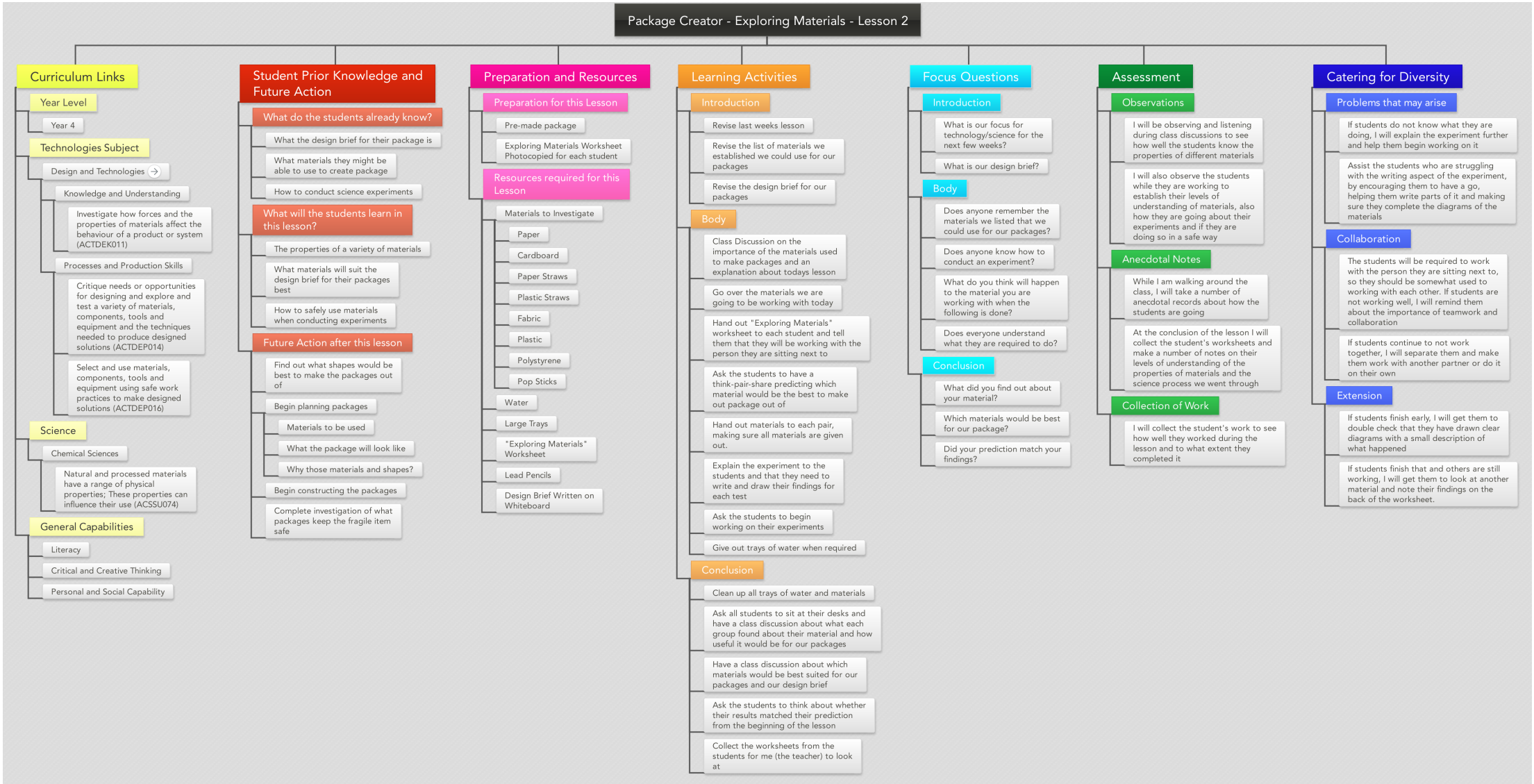
Package Creator - Exploring Materials - Lesson 2
Curriculum Links
Year Level
Year 4
Technologies Subject
Design and Technologies
Knowledge and Understanding
Investigate how forces and the properties of materials affect the behaviour of a product or system (ACTDEK011)
Processes and Production Skills
Critique needs or opportunities for designing and explore and test a variety of materials, components, tools and equipment and the techniques needed to produce designed solutions (ACTDEP014)
Select and use materials, components, tools and equipment using safe work practices to make designed solutions (ACTDEP016)
Science
Chemical Sciences
Natural and processed materials have a range of physical properties; These properties can influence their use (ACSSU074)
General Capabilities
Literacy
Critical and Creative Thinking
Personal and Social Capability
Student Prior Knowledge and Future Action
What do the students already know?
What the design brief for their package is
What materials they might be able to use to create package
How to conduct science experiments
What will the students learn in this lesson?
The properties of a variety of materials
What materials will suit the design brief for their packages best
How to safely use materials when conducting experiments
Future Action after this lesson
Find out what shapes would be best to make the packages out of
Begin planning packages
Materials to be used
What the package will look like
Why those materials and shapes?
Begin constructing the packages
Complete investigation of what packages keep the fragile item safe
Preparation and Resources
Preparation for this Lesson
Pre-made package
Exploring Materials Worksheet Photocopied for each student
Resources required for this Lesson
Materials to Investigate
Paper
Cardboard
Paper Straws
Plastic Straws
Fabric
Plastic
Polystyrene
Pop Sticks
Water
Large Trays
"Exploring Materials" Worksheet
Lead Pencils
Design Brief Written on Whiteboard
Learning Activities
Introduction
Revise last weeks lesson
Revise the list of materials we established we could use for our packages
Revise the design brief for our packages
Body
Class Discussion on the importance of the materials used to make packages and an explanation about todays lesson
Go over the materials we are going to be working with today
Hand out "Exploring Materials" worksheet to each student and tell them that they will be working with the person they are sitting next to
Ask the students to have a think-pair-share predicting which material would be the best to make out package out of
Hand out materials to each pair, making sure all materials are given out.
Explain the experiment to the students and that they need to write and draw their findings for each test
Ask the students to begin working on their experiments
Give out trays of water when required
Conclusion
Clean up all trays of water and materials
Ask all students to sit at their desks and have a class discussion about what each group found about their material and how useful it would be for our packages
Have a class discussion about which materials would be best suited for our packages and our design brief
Ask the students to think about whether their results matched their prediction from the beginning of the lesson
Collect the worksheets from the students for me (the teacher) to look at
Focus Questions
Introduction
What is our focus for technology/science for the next few weeks?
What is our design brief?
Body
Does anyone remember the materials we listed that we could use for our packages?
Does anyone know how to conduct an experiment?
What do you think will happen to the material you are working with when the following is done?
Does everyone understand what they are required to do?
Conclusion
What did you find out about your material?
Which materials would be best for our package?
Did your prediction match your findings?
Assessment
Observations
I will be observing and listening during class discussions to see how well the students know the properties of different materials
I will also observe the students while they are working to establish their levels of understanding of materials, also how they are going about their experiments and if they are doing so in a safe way
Anecdotal Notes
While I am walking around the class, I will take a number of anecdotal records about how the students are going
At the conclusion of the lesson I will collect the student's worksheets and make a number of notes on their levels of understanding of the properties of materials and the science process we went through
Collection of Work
I will collect the student's work to see how well they worked during the lesson and to what extent they completed it
Catering for Diversity
Problems that may arise
If students do not know what they are doing, I will explain the experiment further and help them begin working on it
Assist the students who are struggling with the writing aspect of the experiment, by encouraging them to have a go, helping them write parts of it and making sure they complete the diagrams of the materials
Collaboration
The students will be required to work with the person they are sitting next to, so they should be somewhat used to working with each other. If students are not working well, I will remind them about the importance of teamwork and collaboration
If students continue to not work together, I will separate them and make them work with another partner or do it on their own
Extension
If students finish early, I will get them to double check that they have drawn clear diagrams with a small description of what happened
If students finish that and others are still working, I will get them to look at another material and note their findings on the back of the worksheet.

Design and Technologies

http://www.australiancurriculum.edu.au/technologies/design-and-technologies/curriculum/f-10