**Perfect**

**Packaging**

**Name:**

**Group Members:**

All pictures are from Microsoft Word 2010 Clipart.

**Teacher Information**

**This resource includes;**

* Page 2 – Teacher information
* Page 3 – Class management
* Page 4 – Resources required
* Page 5 – Lesson overviews
* Pages 6 -12 – Detailed lessons
* Pages 13-20 – Student task sheets
* Pages 21-22 – Rubric

**Objective:**

Students will use their prior knowledge of the properties of materials and the concept of recycling and biodegradability to identify a sustainable packaging method for an allocated item. Students will use an iPad app to estimate the calculated cost of delivery and identify the key features needed when designing a package. The design process will be recorded in task sheets and within a final summative assessment piece.

This resource encompasses the following Australian Curriculum criteria;

**Australian Curriculum (new knowledge)
​Design and Technologies - Foundation to Year 2**

 **ACTDEK001:** Identify how people design and produce familiar products, services and environments and consider sustainability to meet personal and local community needs.

**ACTDEP009:** Sequence steps for making designed solutions and working collaboratively.
​**Elaboration:** Recording the procedure for making a product. Example a recipe or instructions for making a container.

​**Cross curriculum priorities: Sustainability**

 **​**Although not directly linked with content descriptions this resource could also incorporate Science through properties of materials.

**CLASS MANAGEMENT**

**Differentiation:**

* Multimodal resources (drawing, iPads, YouTube clips, smartboard)
* Individual and group work (differentiated cooperative groups)
* 3 ways of assessment (drawing, writing, oral)
* Teacher monitoring of groups

**Assessment:**

The resource includes assessable task sheets for the students to complete with a complimentary student friendly checklist to ensure students understand what is required of them. A rubric outlining the assessable criteria is provided for the teacher for the summative assessment piece.

**Early finisher activities:**

For early finishers there is an iPad game ‘Postie Kate and friends’ which aligns with the assessable criteria and reinforces what students have learnt in a fun game.

**Time frame:**

The resource intends to cover 4 lessons of 50 minute durations.

**Class organisation:**

The group activity is designed for minimum 2, maximum 4 students per group. To cater for differentiation groups should be pre-determined based on ability levels, where higher level students can be placed with lower level students.

**Safety:**

General safety discussion relating to;

* Scissors, rulers, use of iPads
* Working in groups
* Moving about the classroom
* Handling of allocated group items

**Resources list:**

**Links to online resources**

* The Journey of a letter video - <http://auspost.com.au/education/ourpost/students/our-post/multimedia-fun.html>
* Follow a parcel – How does it get there? - <http://auspost.com.au/education/ourpost/teachers/our-post/classroom.html>
* Postie Kate and friends game - <http://auspost.com.au/education/ourpost/students/postie-kate/index.html>
* Have a Postie visit your school - <http://auspost.com.au/education/ourpost/teachers/dc-postie-visits.html>
* Australia Post – calculate postage and delivery times - <https://auspost.com.au/parcels-mail/calculate-postage-delivery-times/#/>
* Google maps – [www.google.com/maps](http://www.google.com/maps)

**Other required resources:**

* Packaging material – bubble wrap, cardboard tube, cardboard boxes, plastic postal bags, envelopes, masking tape/sticky tape
* IPads (one per group)
* Shallow container with water
* Pencil, eraser, ruler
* Smartboard with internet access
* Whiteboard and markers

*Note: The required student task sheets are provided further along in this document.*

**Lesson Overviews:**

**Lesson 1:**

Students watch 2 video clips and have a whole group discussion about postal services including discussion around properties of materials (packaging). Teacher has a range of boxes, packages, bubble wrap, tape etc and with class observes and discusses the features of each.

This lesson is a chance to acquire students level of prior knowledge and introduce the task that will be completed in the lessons to follow.

**Lesson 2:**

Recap discussion about packaging and view YouTube clip. Students to form groups and teacher to allocate task ‘item’ to each group. Students to begin task.

**Lesson 3:**

First 20minutes of lesson is provided for students to finish their task. Remainder of lesson for group presentations.

**Lesson 4:** First 10 minutes’ students compile questions to ask the Postie whom is visit the class. Remainder of lesson is for the guest speaker (Postie visit to class).

DETAILED LESSONS

(RUNNING SHEETS)

**Lesson 1 – Teacher Information & Resources**

**Introductory lesson and acquisition of prior knowledge.**

**Year level**: – 2

**Key Learning Areas:** Design and Technology

**Duration:** 60 minutes

**Related** **Content Descriptions:**

**ACTDEK001:** Identify how people produce familiar products, services and environments and consider sustainability to meet personal and local community needs

**ACTDEP009:** Sequence steps for making designed solutions and working collaboratively.

|  |  |
| --- | --- |
| **Curriculum Outcomes**  | Students will identify how people produce familiar products, then design their own based on what they learnt whilst considering sustainability options.  |
| **Students need to know** | Some properties of materials (waterproof, bendable, stretchy, biodegradable)  |
| **Students need to be able to**  | use an iPad, identify properties of materials and know what recycling and biodegradability are.  |
| **Prior knowledge**  | Class discussion and group activity passing packaging items around discussing the features of each item.  |
| **Formative assessment**  | Class discussions, concept specific questions, monitoring groups, students filling in group task sheets (brainstorming, etc) |
| **Summative assessment**  | Final group task presentation and submission of group sequencing sheet |
| **Resources required** | Photo frame, cardboard parcel box, plastic parcel bag, envelope, bubble wrap, masking tape, cardboard tube, plastic parcel bag with bubble wrap lining, smartboard, internet access, predesignated groups, links to video clips.  |
| **Specific language focus** | Materials, properties, package, packaging, letter, parcel, mailman, postbox, scales, calculator, weight, size, waterproof, fragile, breakable, small, flat, large.  |

**Lesson 1:**

**Begin by introducing the lesson**

* Q: Today we are going to look at a range of methods to post an item
* Q: Who has posted an item before?
* Q: What kind of packaging did you use?
* Q: Where did you post your item to? Do you know how far that is?
* Q: I wonder how it got there? How many stops did it make?
* “Let’s have a look at the journey of a letter and a parcel”
* **On smart board open the following link;**

The Journey of a letter video - <http://auspost.com.au/education/ourpost/students/our-post/multimedia-fun.html>

* **Follow with a class discussion and write key points on the board;**
* *Q: What was being posted and what material did they post it in?*
* *Q: How far did it travel?*
* *Q: What would have happened if it got wet?*
* *Q: Why do you think the material chosen was used to send the letter?*
* **View the ‘Follow a parcel’ clip by opening the following link on the smart board;**

Follow a parcel – How does it get there? - <http://auspost.com.au/education/ourpost/teachers/our-post/classroom.html>

*Step through video with whole class following video prompts and add key points to previous list on whiteboard.*

* **Have students form a circle on the ground and pass around one packaging item at a time, asking investigative questions. Complete this until the following items have been discussed (**cardboard parcel box, plastic parcel bag, envelope, bubble wrap, masking tape, cardboard tube, plastic parcel bag with bubble wrap lining**).**
* *Q: What type of package is this?*
* *Q: What items could you post in it?*
* *Q: Would they break, get wet, get damaged?*
* *Q: What size item could you fit in the package?*
* *Q: Do you think it would be light, heavy?*
* *Q: How much do you think it would cost?*
* **Have students sit back in one group on the floor facing the board. Produce an item to send (picture frame with glass insert) and as a class choose the best method of posting. Estimate the weight.**
* Use the following link to estimate cost of delivery as a whole class;

Australia Post – calculate postage and delivery times - <https://auspost.com.au/parcels-mail/calculate-postage-delivery-times/#/>

* **Place a cardboard parcel box in a shallow container of water and seal a plastic parcel bag and place in a shallow container of water. Explain to students they will observe what happens to the item when they return from lunch or in the next lesson (minimum 1 hour for water to have effect).**
* **Explain to students that in the next lesson they are going to begin a task that requires them to work in a group. Designate students into their groups.**

*Based on number of students in class there needs to be minimum 2, maximum 4 students per group.*

* **Teacher to designate groups (low level learners must be group at one per group with a higher level student)**

*Note: The following table has been worked upon the maximum amount of students at 4 per group for a class. Please fill your table in according to your requirements.*

*The grouping process must have minimum 2 students per group with a maximum of 4.*

* **Click on the following link to print A3 size for display in your classroom.**[**https://d.docs.live.net/80daaa2840aa68a1/Documents/EDP4130%20design%20and%20tech%20resource%20resources/Perfect%20Packaging%20Task%20Groups.docx**](https://d.docs.live.net/80daaa2840aa68a1/Documents/EDP4130%20design%20and%20tech%20resource%20resources/Perfect%20Packaging%20Task%20Groups.docx)

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| **Group 1** | **Group 2**  | **Group 3**  | **Group 4**  | **Group 5**  | **Group 6**  | **Group 7**  | **Group 8**  |
| **Students names** | **Students names** | **Students names** | **Students names** | **Students names** | **Students names** | **Students names** | **Students names** |
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* **Students discuss the findings as a whole class of the box and plastic in water**

*Q: What happened to the cardboard? Is it biodegradable?
Q: Did the plastic breakdown? Is it biodegradable?
Q: Did water get in the plastic bag? Did water get in the cardboard box?*

*Note: While discussions are taking place be sure to be discussing the meaning of the following terms Materials, properties, package, packaging, letter, parcel, mailman, postbox, scales, calculator, weight, size, waterproof, fragile, breakable, small, flat, large.*

**Lesson 2 – Teacher Information & Resources**

**Year level**: – 2

**Key Learning Areas:** Design and Technology

**Duration:** 60 minutes

**Resources required:** One iPad per group, photo frame, letter, candle, shirt, large poster and important document. Student task sheets (provided in resource)

**Specific language focus:** Materials, properties, package, packaging, letter, parcel, mailman, postbox, scales, calculator, weight, size, waterproof, fragile, breakable, small, flat, large.

**Lesson 2:**

* Begin lesson by reviewing what was covered in the previous lesson via an interactive game on the smart board with accompanying class discussion.
* Click the link below for the interactive game;

<http://www.bbc.co.uk/schools/scienceclips/ages/7_8/characteristics_materials.shtml>

* Go over the task description (using student task sheet provided) with students and explain they will be forming groups to begin task. Remind students of safety requirements and rules when working in groups. (*no running, staying on task, inside voices, all group members contributing*)
* Using the A3 group task sheet from previous lesson (should be printed and displayed in class already) read aloud task groups and have students move into their groups.

Teacher to monitor groups and encourage students to stay on task. Teacher to monitor student understanding by asking investigative questions to each group. Groups to have one designated work area per group in which they work in at all times.

**Lesson 3 – Teacher Information & Resources**

 **Year level**: – 2

**Key Learning Areas:** Design and Technology

**Duration:** 60 minutes

**Resources required:** One iPad per group,Student task sheets (provided in resource, students will already have these from lesson 2). Area for group presentations.

**Specific language focus:** Materials, properties, package, packaging, letter, parcel, mailman, postbox, scales, calculator, weight, size, waterproof, fragile, breakable, small, flat, large.

**Lesson 3:**

**Explain to students that they will be working on their group task for another 20minutes. The task needs to be complete by then and students will then be presenting their group task to the class one group at a time.***(Students need to be seated and paying attention to each groups presentation. Students need to ask the presenting group questions after their presentation).*

* Remind students of safety requirements and rules when working in groups. (*no running, staying on task, inside voices, all group members contributing*). Then have students form back into their groups to continue working on their group task.
* Remind students throughout lesson of the following;
* Staying on task
* Inside voices
* Putting their hands up if they need help
* Making sure their packaging is meeting the requirements of the task sheet
* Give time warnings “You have 20 minutes to complete your task, 10 minutes remaining, 5 minutes remaining”
* Once the 20 minutes is completed, students to sit back at desks in their groups, teacher to give 2 minutes for students to revise who is saying what before they present. Teacher then to call one group up at a time.
* Once all groups have presented and all questions and discussions have taken place, students to hand in all their task materials and pack up the classroom.

Teacher to take notes of presentations in order to mark group assessments combined with task sheets in alignment with the rubric provided.

**Lesson 4 – Teacher Information & Resources**

**Year level**: – 2

**Key Learning Areas:** Design and Technology

**Duration:** 60 minutes

**Resources required:** Postie visit to class needs to be organised prior to commencement of this lesson by using the following link;<http://auspost.com.au/education/ourpost/teachers/dc-postie-visits.html>

**Specific language focus:** Materials, properties, package, packaging, letter, parcel, mailman, postbox, scales, calculator, weight, size, waterproof, fragile, breakable, small, flat, large.

**Lesson 4: Postie visit class**

Explain to students that in this lesson a Postie (Australian term for Postman) will be visiting the class. Teacher to go over etiquette and behavior when there is a guest speaker in class.

Explain to students that in the first 10minutes of the lesson students will compile questions as a whole class to ask the postman. The remainder of the lesson will be for the guest speaker visit. Choose a student who will thank and present the postman with a small gift (chocolates, hamper basket etc).

* Prompt students to think about some questions to ask the Postie

*Q: Based of the task we just completed, are there any questions we could ask?
Q: Is there anything you want to find further information out about?
Q: Is there anything you think the postman could tell us that we don’t already know?
Q: Do you think the postman travels very far?*

Whilst students are thinking and providing their responses write the compiled questions down so teacher can prompt students when the postman is in class.

* When Postie arrives have students formally greet them (by standing up behind desks)
* Follow on with a discussion and student questions.
* At conclusion of talk have student present gift and say a thank you.

Design the perfect package!

  

You have learnt about the journey of a letter and parcel. You looked at the ways you can package an item and the best material to use.

Now it is your turn to design the perfect package for your groups item!

Task

Look at your groups item and where you are posting it to. As a group decide what is the best way to package the item and the key features you need in your package (waterproof, protective, etc.) Design your box by drawing it on paper and labelling the key features.

*Note: You will use an iPad to calculate to cost of posting your item in its package with the postcode provided.*

Once you have designed your package (1 and a half lessons) your group will present the design to the class and explain why you chose the package.

Criteria

There is a ‘Step’s for making our package’ sheet. You need to have one per group member and each group member is to fill in the steps in the correct order of how you designed your package.

What you need

* Your item and location you are posting it to
* One iPad per group
* Two pieces of butcher’s paper (for brainstorming ideas)
* Lead pencils, eraser and ruler
* A3 white paper (to draw your final design on)
* Task sheet – ‘Steps for making our package’ (one per group member)

Checklist

This checklist shows you how your teacher will be marking you. Make sure you check this before you make your package and keep checking it to make sure you are completing your task!

Perfect Packaging Group Sheet

Name:

Group members:

Our item is:

Our item is being posted to and the postcode is

Our item weighs:

Our package needs to include these features:

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |

Our package’s measurements width height

 depth

It is going to cost $ to send our package

We chose this package because

THINGS TO THINK ABOUT WHEN PLANNING!

WRITE YOUR ANSWER IN THE SPACE PROVIDED 

Is your item heavy or light?

Is your item breakable?

Is your item small or big?

Is your item flat?

Is your item a shape?

Will your item get ruined if it gets wet?

How far is your item being posted?

Does your item need protective padding?

Is the material you selected recyclable?

Is the material you selected biodegradable

BRAINSTORMING IDEAS

Record your brainstorming ideas here



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DRAW YOUR DRAFT DESIGN HERE



|  |
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DRAW AND LABEL YOUR FINAL DESIGN HERE

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STEPS IN DESIGNING OUR PACKAGE

GROUP NAMES:

In the spaces below write the steps you took to design your package.

Item:

Packaging method:

|  |  |
| --- | --- |
| Step 1  |  |
| Step 2  |  |
| Step 3  |  |
| Step 4  |  |
| Step 5  |  |
| Step 6 |  |

EVALUATE YOUR DESGN AFTER GROUP DISCUSSIONS

Is there anything you could have done differently to improve your packaging method?

Was your packaging method recyclable?

Was your packaging method biodegradable?

RUBRIC

Unit: Perfect Packaging

Year 2: Design and Technologies

Date: Student name: Markers name:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CRITERIA** | **A** | **B** | **C** | **D** |
|  | **Above expected level**  | **At expected level** | **Developing towards expected level**  | **Below expected level** |
| Identifies item, weight and postcode correctly.  | Identifies item, weight and postcode correctly. Provides information on travelling distance. | Identifies item, weight and postcode correctly | Identifies item and postcode correctly, weight mostly correct | Identified item correctly. With assistance was able to locate postcode and work out weight.  |
| Identifies packaging features correctly and appropriately.  | Packaging features correctly and appropriately identified. Links to sustainability and costs identified and explained. | Packaging features correctly and appropriately identified. One link to sustainability evident. | Packaging features correctly and appropriately identified with a few lapses in appropriateness.  | Lapses in identification of relevant packaging features. With assistance can identify one or two features correctly. |
| Measures item accurately and uses iPad app to generate a sound estimate of postage costs. | Measures item accurately and uses iPad app to generate a sound estimate of postage costs. Identifies 3D shape of package. | Measures item accurately and uses iPad app to generate a sound estimate of postage costs | Measures item mostly correct with one or two mistakes. Some assistance required with iPad app is within 20% (+/-) of appropriate estimate.  | Assistance required to measure item correctly. Assistance required to use iPad app.  |
| Documents the process in task sheets provided. | All task sheets completed in detail, with relevant ideas and logical order. Pictures drawn accurately and appropriately.  | All task sheets completed with no sections missing. Relevant and thoughtful ideas used. Pictures drawn appropriately.  | All task sheets completed with few sections missing. Mostly relevant and thoughtful ideas used. Pictures drawn with attempt at accuracy.  | One or more task sheets unfilled. Ideas are mostly appropriate. Assistance required to generate answers and ideas.  |
| Final design includes all required elements.  | Final design is appropriate, features correctly identified, picture is accurate. Links to sustainability/costs and provides justified explanation of packaging choice.  | Final design is appropriate, features correctly identified, picture is mostly accurate. Links to sustainability. Provides explanation of packaging choice.  | Final design is appropriate with few lapses in accuracy of identified features. Picture is mostly accurate. Explanation lacks depth in reason for choosing packaging. | Final design has 1 or 2 accurately identified features. Picture lacks accuracy or relevancy. Explanation attempt not evident.  |
| 6 task steps are recorded with explanations.  | 6 steps provided with highly relevant and accurate reasoning.  | 6 steps provided with relevant and accurate reasoning.  | No less than 5 steps provided with mostly accurate and relevant reasoning.  | More than 2 steps missing. Answers lack relevancy and accuracy.  |
| Group presentation shows collaboration and understanding of topic.  | All members share in presentation and is well paced and includes all required elements of task sheet. Students use loud, clear voice.  | All members share in presentation and is well paced. All required elements included. Use loud, clear voice and show attempt at confidence in speaking.  | Most members share in presentation fairly. Presentation pace mostly accurate. Voices need projection and clearer. Most required elements evident.  | Most members share in presentation fairly. Presentation pace mostly accurate. Presentation gets off task, logical order of presentation requires teacher prompting.  |