

readysetgo

MODULE 7
LESSON PLAN

MODULE FORMAT:

Every module follows the structure below to make it easy for any adult to facilitate step by step:



Watch Module Video

Successful entrepreneurs explain the module's topic using their own business as an example. Found at www.clubkidpreneur.com/resource-centre/



Discuss Module Topic

Discuss theory & keywords using the Facilitation Notes in the lesson plans



Theory Activity

Activity to teach & reinforce the module's theoretical concepts. Each module contains one or both of the following:

- Interactive theory activity
- Worksheet theory activity



Applied Activity

Written activity using Ready Set Go Worksheets where kidpreneurs apply the theory to their own businesses



'CK Business Kit' Activity

Use the module's *CK Business Kit* item to practically build the real-world business

MODULE 7

How will I make lots of products?

MODULE	7
RSG STAGE	SET
LESSON TITLE	<i>How will I make lots of products?</i>
LESSON FOCUS	Developing an efficient production line process to make lots of consistent, high quality products.
OUTCOMES	<ul style="list-style-type: none"> • Develop an understanding of what a production line is and why it is of benefit to a manufacturing business • Create and use a production line to produce business products • Understand that raw materials are needed to build products • Understand why making an inventory of raw materials is helpful to know how many products can be made
KEYWORD	PRODUCTION LINE A time saving process to build a large number of high quality products in the most efficient way
	INVENTORY A list of the raw materials you have available to make products with.
BUSINESS KIT RESOURCE	Kidpreneur Stop Watch - Production Line Timer (<i>3 per CK Business Kit</i>)
VIDEO	VIDEO #7 - How will I make lots of products?
WORKSHEET	Module 7 - How will I make lots of products?

LEARNING SEQUENCE:

1. Watch Module Video

- Found at www.clubkidpreneur.com/resource-centre/

2. Discuss Module Topic (see notes over leaf)

- Production Lines
- Raw materials vs equipment
- Inventory

3. Theory Activity

- *Interactive:* Production Line Competition
- *Written:* Production Line Design

4. Applied Activity

- My Inventory List
- *Interactive:* Production Line Table
- My Production Line

5. CK Business Kit Activity

- Production Line Timer

6. Goal Keep Reflection

FACILITATION NOTES:



MODULE 7 VIDEO

See www.clubkidpreneur.com/resource-centre/ to view the module video



MODULE TOPIC NOTES

PRODUCTION LINE

In businesses making large volumes of products for sale, it takes far too long to make each product one-by-one from start to finish. So businesses will often use a 'Production Line'.

A PRODUCTION LINE is a time saving process to build a large number of high quality products in the most efficient way.

To do this, the process of making a product is divided into steps. Each step is completed for all products before moving on to the next stage of production. For example, a production line can be used to send a large amount of letters in the mail. The process of printing, folding, addressing and stamping all of the letters can be broken down into steps. Each step will be completed for all letters before moving on to the next one. These steps might be:

1. Fold all letters into thirds ready to go into the envelope. Put all letters into a pile.
2. Put all letters into their own envelope. Put all envelopes on a pile.
3. Peel off printed address labels and stick onto each envelope. Put all addressed envelopes into a pile.
4. Put a stamp on each envelope. Put all stamped envelopes into a pile ready for posting.

Advantages of a production line:

- **More quick:** The overall time to make all of the products is reduced. This is because you can get quick at doing the same repeated task with little wasted time in between as you get into a flow. E.g. if you folded, enveloped,

addressed and stamped each letter one at a time it would take longer as you wouldn't get into a flow and it takes time between each step.

- **More quality:** The quality of each product is higher
This is because if you are doing the same step for all items you pay special attention to every step and get better at that step the more times you do it. E.g. if you put the address label on one after the other you get better and better at putting it on straight and in the right place.
- **More specialisation:** You can get other people who are good at specific things to complete certain parts of the process.
This means that you could have different specialist people working on different parts of the process at once to save time and have higher quality. E.g. One person who is good at folding can fold all the letters and the next person takes letters off the folded pile and puts them into an envelope, then another person takes the envelope and sticks the address label on it and so on.

RAW MATERIALS vs EQUIPMENT

There is an important distinction to make when talking about production lines. That is the difference between raw materials and equipment. Both are used within a production line, but have different purposes.

RAW MATERIALS

Raw Materials are the basic materials, which are combined together to make up the final product. Raw materials are used up in the production line.

E.g. For a cupcake business the raw materials are flour, eggs, sugar, patty pans, sprinkles etc.

EQUIPMENT

Items of Equipment are the tools that are used to convert the raw materials into the final product. Equipment is not used up in the production line and is used to make many products.

E.g. for a cupcake business the equipment would be bowls, mixing spoons, cupcake trays etc.

It is important to consider both what raw materials and what equipment are needed in a production line.

INVENTORY

In order to know how many raw materials are available to make products in a production line, a business will have an 'Inventory'.

An Inventory is a complete list of all the raw materials available to make a product.

An Inventory is made up of the names of raw material items that the business has on hand to make products with, accompanied with the quantity they have available.

An inventory list for a cupcake business might look like this:

Flour	5kg
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Eggs	20
Sugar	6kg
Patty pans	100
Sprinkles	500g

In module 7, students will create their own inventory list and production line to help them produce their business products quickly, efficiently and to a high quality.



THEORY ACTIVITY INSTRUCTIONS

INTERACTIVE: PRODUCTION LINE COMPETITION

The aim of this activity is to show students how much more efficient a production line is compared to making individual products one by one (see the 3 advantages listed above).

Breaking the process into steps a) saves time, b) leads to higher quality products and c) allows multiple people to work on the same product and specialise in what they are good at.

Here's how to run the production line competition:

You will need the following production line resources:

- 1x scissors per group
- 1x stapler per group
- 20x A4 sheets of paper (choose one colour)
- 5x A4 sheets of paper (choose a different colour)

How it works:

1. Split your kidpreneurs evenly into groups of 3-4, giving each group one set of production line resources
2. Show them a pre-prepared prototype of the widget they have to make (a pile of 9 triangles of consistent size (they choose the size) with one triangle of a different colour in the middle and a staple through the middle of the stack of triangles.

3. Teams have 2 minutes to build as many widgets as they can, though only widgets that pass the teacher quality control will count as finished products.
4. At the end of the time, teams state how many they made. Each team nominates an adjudicator to check the other teams' quality to find ones which aren't adequate quality i.e. triangles of different sizes, the different colour isn't in the middle of the 4-1-4 stack, there are too many triangles etc.
5. Ask the teams to share what they did well and what they could do differently.
6. Now instruct them to redo the exercise first having 5 minutes to plan their production line. See how many more they can make in the same period of time (2 minutes). An example of a production line process might be: Team member 1: draws triangle outline. Team member 2= triangle cutter. Team member 3= Triangle stacker. Team member 4= Triangle stapler.
7. Compare both the quantity and quality of widgets made in each round. Use the results to discuss the benefits of a production line. If the production line did not improve quantity or quality, discuss how it could have been done differently to achieve increased quality and quantity.

WRITTEN: PRODUCTION LINE DESIGN

Now students can practice designing a production line with an example business. The Module 7 Worksheet contains an Inventory of the materials available for a business that makes spray painted T-shirt designs. Also listed is the equipment available for use in the production line process.

The Worksheet gives a blank template for kidpreneurs to design a production line for this business. The steps to completing the production line are as follows:

1. List the main steps in producing each item. Describe each step in the first column of the table labeled 'Step'.
2. Identify the raw materials required for each step and record this in the 'Raw Materials' column of the table. *(Remember the distinction between raw materials and equipment.)*
3. Name the equipment required for each step and record this in the 'Equipment' column of the table. *(Remember the distinction between raw materials and equipment.)*
4. Finally, think of a tip for each step to help make the production line more quick, better quality or use specialized skills.

Suggested answers for this activity are below:

	STEP <i>Description of each step to make the product</i>	RAW MATERIALS <i>Materials needed for this step</i>	EQUIPMENT <i>Tools I will need for this step</i>	PROCESS TIP <i>How to make high quality products</i>
1	<i>Cut the T-shirt material to size</i>	<i>White T-shirt material</i>	<i>Scissors</i>	<i>Ask my friend who cuts straight lines quickly to do this step.</i>
2	<i>Sew the material into T-shirts</i>	<i>White T-shirt material + Cotton</i>	<i>Sewing machine</i>	<i>Make sure the seams are sewn in a straight line.</i>
3	<i>Spray paint the logo onto T-shirts</i>	<i>White T-shirts (sewn in step 2)</i>	<i>Stencil</i>	<i>Hold the spray can 30cm away from the stencil for the best spray</i>
4	<i>Spray the finishing spray to waterproof the design</i>	<i>Clear gloss finishing spray</i>		<i>Spray in horizontal lines back and forth to make sure no part is missed.</i>



APPLIED ACTIVITY INSTRUCTIONS

MY INVENTORY LIST

After viewing the example inventory in the theory activity, kidpreneurs can now create their own Inventory specific to their business.

This inventory list will be made up of the raw materials each business has ordered from Cleverpatch using it \$40 voucher as well as any additional materials added in. Additional materials might be purchased from somewhere else, donated by a business or recycled materials to repurpose for the business product. Every material that will make up the final business product needs to be included in the Inventory. This will help the business know how much is has available to make its products, and how many products it can make.

Remind students that equipment should not be included in the Inventory list, as equipment is not used up in the production process; it is used to make lots of products.

To complete the inventory list, students write each raw material item that goes into making their product in the 1st column and the quantity of each item the business has available to make products with is recorded in the 2nd column.

Note: Even if students have not received their product delivery from Cleverpatch yet, they can use their order form to figure out how many they will have once it arrives.

OPTIONAL INTERACTIVE ACTIVITY: PRODUCTION LINE TABLE

Before moving on to creating a production line for their business, this activity can help students more easily visualise the production process to help them break it into steps for their production line.

Give kidpreneurs the following instructions to build a production line table:

1. Remember back to when a prototype was made of the product. Identify the main steps to produce the business product and write each step on a separate piece of paper. Line each piece of paper up in sequential order along the top of a table.
2. Underneath the piece of paper for each step, place everything that is needed to complete that step.
3. Separate these things into raw materials and equipment. Place raw materials directly below the piece of paper for that step and the equipment below this. A question to help guide this is: 'Is this item used up in the making of a product (raw material), or is it used to make many products (equipment)?'
4. Remembering when the prototype was being produced, kidpreneurs should write a tip on another piece of paper for doing each step quickly, efficiently and to a high quality.

This interactive activity will help prepare kidpreneurs for the written production line activity that follows.

MY PRODUCTION LINE

Now that they know what Inventory is available to produce products, kidpreneurs now design a Production Line process for their business. The Module Worksheet contains a template to design a production line for the business using the inventory list created in the previous activity.

The steps to completing the production line are as follows:

1. Clearly identify the main steps in producing one item. Describe each step in the first column of the table labeled 'Step'.
2. Identify the raw materials required for each step and record this in the 'Raw Materials' column of the table. (*Remember the distinction between raw materials and equipment.*)
3. Name the equipment required for each step and record this in the 'Equipment' column of the table. (*Remember the distinction between raw materials and equipment.*)

4. Finally, think of a tip for each step to help make the production line more quick, better quality or use specialized skills. (*Tips can also be added later when the production line is in process*).

Note: This exercise will require teacher input. Review each business' production line to ensure their process sounds logical and effective. Make suggestions for how it could be improved. Students may wish to draft a production line process on another piece of paper before recording the final process on their worksheet.



'CK BUSINESS KIT' ACTIVITY INSTRUCTIONS

PRODUCTION LINE TIMER

Inside each CK Business Kit is one Kidpreneur Watch per student. These watches have stopwatch functionality to be used for timing the production line.

Kidpreneurs should first time how long it takes to produce one item from start to finish without using a production line.

Next they should begin to use their production line to produce many products at once and time how long it takes for one product to go from start to finish.

Continue to time the production line to see which parts could be made quicker and more efficient without decreasing the quality of the product. Could the kidpreneur add in an extra person who specialises in one of the steps to do that particular step to a high standard in a short amount of time?



GOAL KEEP REFLECTION

Will your production line help you make enough products in time and at a high enough quality that your target market will buy them on your market day? This is how you will make enough money to reach your sales goal.