Teacher’s Guide for the:
STEAM Education Lip Balm Company/ Entrepreneur Lesson Plan

1. **Brief Timeline of doing Project.**
2. **Extended Timeline of doing Project with PPT slide inserts to match what students see with educator tasks and basic recipes they are expected to find.**
3. **STEAM Lip Balm Kit Instructions and Recipes with Equipment List**
4. **Breakdown of Cost Table**

1. **Brief Timeline of Lip Balm Project** – It is possible to accomplish this lesson plan in 5 – 45 min. classes if some work is done as homework. It is also possible to break up the work among different subject-based teachers to get it done more efficiently.
   a. Before working with students:
      i. Make a test batch without the students around
      ii. Make sure you have all equipment and supplies needed
   b. Class Period #1
      i. Go over the process with your students in the student PPT.
      ii. Preferably break students into teams of 4-5 students each.
      iii. Have students start research (can be done as homework)
      iv. Have each group select a different target market.
      v. Have students create a sample survey as a team to hand in.
      vi. Give students the standard survey and have them collect at least 5-10 surveys per student within their target market. (Give them a few days to collect these.)
   c. Class Period #2
      i. Finish basic research and filling in answers on PPT business plan.
      ii. Have students start looking for sample recipes – min. 1 per student.
      iii. Have students find the commons of the recipes.
   d. Class Period #3
      i. Have students start creating a flow chart of the process.
      ii. Have students set up a process to tally and graph their surveys.
      iii. Have students start looking up prices of ingredients.
   e. Class Period #4
      i. Have students tally and graph the results of their surveys.
      ii. Have students make a product proposal.
      iii. Start working on the labels and ads.
      iv. Complete the math sheet and cost analysis.
   f. Class Period #5
      i. Test and final batches can be done in one day.
      ii. Some of the team can be working on the labels and ads.
      iii. Labels can be put on.
2. **Timeline of Lip Balm Project** – It is possible to accomplish this lesson plan in 5 – 45 min. classes if some work is done as homework. It is also possible to break up the work among different subject-based teachers to get it done more efficiently.

a. **Before working with students:**
   i. Make a test batch without the students around so that you understand the process better to do it with them.
   ii. Make sure you have all equipment and supplies needed that is not included in our kits.
   iii. See section 3: **STEAM Lip Balm Kit Instructions and Recipes with Equipment List**

b. **Class Period #1**
   i. Go over the process with your students in the student PPT. Please show them the whole PPT and go over each stage of the project briefly so they understand the steps of being an entrepreneur and this specific process. If students do not have access to work on computers, the PPT can be printed for them to fill in that way and/or use additional sheets of paper.

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**Why Lip Balm?**

- **Sustainability**
  - buy local & organic – support bee keepers
- **Entrepreneur skills**
  - Less shipping to fill a need
  - develop specific product based on research & design loop
  - create and maintain a team-based small startup company with real-life competition & consumers

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**Instructions**

- Follow the word document and power point instructions.
- All ideas must have a picture – you must replace mine! you may take photos or get them off the internet – you must put source along or take a photo – who took it is what site did it come from.
- **If there is more than one person on the slide, break it into multiple slides each must have an original picture.
- Your team must engineer (research, develop) and market your product based on target market survey results.
- Each team member needs to be a leader of one or more part of the process.
- Each team member must explain their role and put names by question that each person answered – more than one name okay.
ii. Preferably break students into teams of 4-5 students each.

iii. Have students sign up for or assign them to be managers of the various aspects of the business and production plan in the PPT.

iv. Have students start research (can be done as homework)
v. Have each group select a different target market.

Target Market

Decide who your target market is and explain why

Develop a survey to find out what they will prefer for:
- colors
- qualities
- flavors
- packaging styles
- and what they will pay for it?

vi. Have students create a sample survey as a team to hand in.

Survey

1. 
2. 
3. 
4. 
5. 
6. 
7. 
8. 
9. 
10. 

Comments:

Example of what to expect (middle school students)

3. Survey:

10 question survey – must cover price, flavor, medications, use & comments
- each student needs to collect 10 surveys from people in your target market

i. How much would you pay for lip balm?
ii. Rank your top 3 flavors (the list below)
iii. How often do you use lip balm?
iv. Rank your top 3 medications (list below)
v. What store do you want to buy it at?
vii. Why do you use lip balm?
viii. What’s your favorite color of lip balm?
ix. Do you want the color to match the flavor?
x. Do you have questions or comments?

vii. At the end of class, give students the standard survey to use and have them collect at least 5-10 per student within their target market. (Give them a few days to collect these.)

viii. Have students set up a process to tally and graph their surveys.
Example of what to expect (middle school students)

<table>
<thead>
<tr>
<th>Lip Balm Target Market Survey – TARGET MARKET</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>TEAM:</td>
<td>Green</td>
<td>Bz</td>
<td></td>
</tr>
<tr>
<td>Daily</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smooth lips</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chapstick</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flavored</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Citrus</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o plain, $H^L$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o peppermint, $H^L$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o chocolate, $H^L$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o cinnamon, $H^L$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o citrus (lemon, grapefruit AND/or orange)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MORE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are you MORE or LESS likely to buy lip balm with medical additives?</td>
<td>$H^L$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Of the following medical additives, please circle those that you would want to use:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>vitamin E – softness</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>zinc – sunscreen</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>eucalyptus – cough and cold relief**adds scent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>tea tree – cold sores or cuts – antibiotic **adds scent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MORE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Would you be MORE or LESS likely to buy a lip balm that was made with organic and natural products?</td>
<td>$H^L$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MORE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Would you be MORE or LESS likely to buy a lip balm that had a decorative label?</td>
<td>$H^L$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$1.25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. What do you feel is a fair price range for a single tube of lip balm</td>
<td>$1.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Do you have any questions or comments?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
c. Class Period #2
   i. Finish basic research and filling in answers on PPT business plan.
   ii. Have students start looking for sample recipes – min. 1 per student.

   iii. Have students find the commons of the recipes.

   Recipe Commons
   • What are the common CATEGORIES of supplies?
   • What SPECIFIC SUPPLIES do most recipes have in common?
   • What are the supplies that seem to vary most?

   iv. They can also start brainstorming what their specific product will be and come up with a prototype recipe.

   d. Class Period #3
   i. Have students start creating a flow chart of the process.

   ii. Have students start looking up prices of ingredients and start to fill in the math sheet (can’t be completed until surveys are tallied and product specifics are chosen).
e. Class Period #4
   i. Have students tally and graph the results of their surveys. (Go back to previous slides to complete.)
   ii. Have students make a product proposal based on their brainstorms and recipe prototype (recipe, process, company name, product name, flavor name, sketch ideas for a label and ad).

   iii. If possible, approve these and have them start working on the labels and ads in class.
   iv. Complete the math sheet and cost analysis.
**Math Sheet:** (please note that these answers are based on smaller batches than the ones that we now use. The process is the same, but you can expect larger numbers.)

Lip Balm Recipes – TEAM/TARGET: Green/Senior Women

**BASIC RECIPE:**
- 1 part wax
- 1 part oil
- 1 part butter
- 1 oz each
- 1/16 oz in a pound

**OPTIONAL:**
- 1/4 tsp flavoring .04 oz
- 1/4 tsp medicine

**CONTAINER**
- Tube & Lid
- Sealing Sleeve

Your Team’s Specific Recipe & Costs:

<table>
<thead>
<tr>
<th>General</th>
<th>Specific (Batch)</th>
<th>Bulk Cost $ for how much</th>
<th>$ / batch</th>
<th>$ / tube (25 in a batch – ave.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wax</td>
<td>1 oz beeswax</td>
<td>$.22/2.1 lb</td>
<td>0.96</td>
<td>0.03</td>
</tr>
<tr>
<td>Oil</td>
<td>1 oz grapeseed oil</td>
<td>$.05/1.1 oz</td>
<td>0.31</td>
<td>0.02</td>
</tr>
<tr>
<td>Butter</td>
<td>1 oz *butter</td>
<td>$13.50/1/2 lb</td>
<td>1.68</td>
<td>0.07</td>
</tr>
<tr>
<td>Flavor(s)</td>
<td>Citrus</td>
<td>$.75/1/2 oz</td>
<td>0.6</td>
<td>0.02</td>
</tr>
<tr>
<td>Medicine(s)</td>
<td>Vitagmin E.</td>
<td>$10.00/1/2 oz</td>
<td>0.8</td>
<td>0.03</td>
</tr>
<tr>
<td>Container</td>
<td>Tube &amp; Lid</td>
<td>$47.00/500</td>
<td>0.95</td>
<td>0.14</td>
</tr>
<tr>
<td>Seal</td>
<td>Tube Sleeve</td>
<td>$4.00/500</td>
<td>0.8</td>
<td>0.03</td>
</tr>
</tbody>
</table>

**TOTAL COST PER TUBE**

**does not include costs of: labor, transportation or overhead (equipment & power)**

- you have the choice of shea, jojoba or cocoa butter – (cocoa makes it smell like chocolate, otherwise use shea or jojoba
f. Class Period #5

i. Test and final batches can be done in one day. The process takes about 45 minutes. If the students can be put on a schedule to use the microwave efficiently or you can get one per team, they should all have time to make their products in one class period.

Make Product

Equipment needed:
- Clean surface
- Gloves for everyone – ideally face masks and hair nets too
- Sterile containers for measuring processing
- Sterile spoons for measuring & stirring
- 2 cup pyrex cup
- Microwave
- Cutter for students with block wax
- Tube filler & spaula
- Tubes & caps

ii. For their original test batch, instead of pouring a mix into the tubes, they should put a few drops on a sheet of wax paper and then wait 3 minutes to test and evaluate them according to the test batch chart. Any changes they wish to make can be made by adding things to the original batch so that nothing is wasted. If they change the recipe, they should repeat the testing of drops. Once they are happy with their recipe, they can pour them into the tubes, wait until they settle and top off the tubes. (Again, see section #3 for specifics.)
iii. While they are waiting, some of the team can be working on the labels and ads.
(Specifics in Section 3 about label making.)
You have to design the following pieces of marketing:

A label WITH:
- Your product name
- The ingredients listed in order of the amount in the product (most to last) and if the same amount, then alphabetically. *If you have a medicine in it – there must be a separate line that says: active ingredient.* For example: Sunscreen active ingredient: Zinc Oxide %
- The price
- Where it was made = SJMS, VA
- A nice layout or design
- ALL WORDS MUST BE CLEAR AND EASY TO READ
- ALL designs must be appropriate and in good taste

A magazine ad – the size of a sheet of paper WITH:
- Your product name
- A Slogan
- Where people can purchase the product
- Reasons for them to purchase the product
- A nice layout or design
- ALL WORDS MUST BE CLEAR AND EASY TO READ
- ALL designs must be appropriate and in good taste
- EXTRA CREDIT: A logo

iv. If they complete the labels, they can be put on the same day, if not, that becomes day 6, as do any extensions like making lip balm videos and/or cases, etc.
3. **STEAM Lip Balm Kit Instructions and Recipes with Equipment List**

**Basic Batch (makes 50 tubes of lip balm):**
- 3.15 oz. oil (not provided). We recommend olive or grapeseed oil. You can use nut oils, but must label for allergies
- 3.15 oz. beeswax beads
- 3.15 oz. shea butter
- ½ tsp. flavoring oil (up to 1 dram if stronger flavor desired) - optional
- 0.2 oz. zinc oxide powder- optional for sunblock factor
- Contents of 5 Vitamin E softgels - optional for softening factor
- 1 Lip balm filling tray
- 50 tubes and caps
- 50 lip balm labels with tabs and template
- 50 shrink bands (plastic sleeves) to cover your lip balm labels - optional

**Equipment needed:**
- Microwave
- 2 cup Pyrex measuring cup
- Spoon
- Plastic spatula or putty knife for scraping lip balm trays clean
- Small measuring cups - approximately 4 oz.
- Gloves and face masks
- Scale or triple beam balance and clean scale plates or plate covers
- Color printer and basic photo editing software to make lip balm labels
- Sanitary work station – you can use plastic sheets taped down to easily create these spaces
- If ordering optional shrink bands: Heat gun to fit them to your lip balm tubes

**Please note:** If you are using the Classroom Kit, packages come in pre-weighed ingredient batch sets that are easily separated into six groups, so each group has the ingredients to make one Basic Batch.

Assemble all your ingredients and equipment. Put on your gloves and face masks. Open the “STEAM Lip Balm Trays- How to Use” pdf and follow the instructions for filling the trays with your tubes.

Place oil, beeswax and shea butter in a 2 cup Pyrex measuring cup in the microwave. Start with 1 ½ minutes and then stir and put back in for 30 second intervals until the mixture is completely liquefied. Beeswax is the item that will take the longest to melt. Do not let mixture boil! When completely melted, stir in zinc oxide and flavoring oil. Pierce the Vitamin E softgels and squeeze contents into mixture. Stir thoroughly until smooth.

*Be careful not to burn yourself! Oils and wax get hot very quickly and the temperature can climb higher than you suspect.

Follow instructions for filling the lip balm trays. Allow to firm for about 10 minutes. Scrape off excess wax with a plastic spatula or putty knife and set aside for topping off the tubes. The tops will sink as they harden and you will need to repour the tops. You will need to reheat your mixture to top off the tubes. Allow to firm for 15-20 minutes and remove tubes from tray and cap them. Have each student on the team hand wash all the equipment so that there is less wax and oils on the equipment when it goes through a dishwasher.
Download your Lip Balm Label Template here:

- If you have purchased our labels, download the Lip Balm Label Microsoft Word Template (OL1102 - 2.125" x 2.125") here: [http://www.onlinelabels.com/Templates/OL1102-template-microsoft-word.htm](http://www.onlinelabels.com/Templates/OL1102-template-microsoft-word.htm) (if you cannot see the gridlines on your template when open it in Microsoft Word, please click on Layout at the top of your screen and check “Gridlines”.)

- If you are using Adobe Illustrator or Photoshop, you can download a pdf version of the template here: [http://www.onlinelabels.com/Templates/OL1102-template-pdf.htm](http://www.onlinelabels.com/Templates/OL1102-template-pdf.htm) (when you print out the template you need to uncheck "fit to page" in the print options or the image will be smaller than actual size.)

- For those using using their own paper labels with tape: Label must measure: 1 ¼” wide – length of tube – the writing should go in this direction x 2 1/4” around the tube – put a 1/4” border on the edges in this direction so that the usable area is 1 ¾” – The templates above should also work for these labels.

After you have created your label, read the “Tips for Printing Weatherproof Lip Balm Labels” pdf before printing. Place your labels on the tubes, with the tab making a tamper-evident seal on each cap.

If you are using the optional perforated shrink bands (plastic sleeves), these may be placed over each label and shrunk to fit using a heat gun. These will keep your labels clean and save them from wear and add an additional seal to the tubes.

**Notes for our teachers:**

An easy guide for creating your own lip balm recipes is this basic recipe that will need to be amended slightly to get the consistency you want – either waxier or creamier:

- 20% Beeswax
- 25% solid at room temperature oil (Coconut Oil, Palm Oil, Shea Butter, Lanolin, etc.)
- 15% brittle at room temperature oil (Regular Cocoa Butter, Palm Kernel Oil, etc.)
- 40% liquid oil at room temperature (Sweet Almond Oil, Olive Oil, Avocado Oil, etc.)
- The tubes will hold about .15 ounces of product.
- All terms of measurement are weights. You can do it in ounces, grams or pounds.

**Zinc Oxide:** This particular zinc oxide is non-nano, which means the particles are large enough not to be absorbed by the skin. Because of this, it is less likely to irritate or cause allergic reactions.

Zinc Oxide can be added to creams and lotions to add sun protection. It is the best broad spectrum UVA and UVB reflector approved for use as a sunscreen by the Food and Drug Administration. It sits on top of the skin and reflects both UVA and UVB light.

**Flavorings:** Your Single or Refill Lip Balm Kit will come with 1 dram of a random flavor of our oils. Your Classroom Lip Balm Kit will come with 6 drams of random flavors.

You have the option of purchasing additional drams in your choice of flavoring for $3.00 each Choose from Orange, Key Lime, Cherry, Strawberry, Raspberry, Spearmint, Cinnamon or Coconut.

These oils are food-safe and super-strength. You will need about 0.5 teaspoon per batch of 50 lip balms and can add more if a stronger flavor is desired. The 1 dram bottle will yield 0.75 teaspoons of oil.

Some of the flavorings will be stronger than others, so experiment to find the amount you prefer.
**Lip Balm Filling Trays:** These sturdy, injection molded HDPE plastic trays are very handy for filling your lip balms easily, quickly and with less mess and waste of product. Each one holds 50 lip balm tubes and are dishwasher safe. You have the option of purchasing additional filling trays if desired.

**Lip Balm Tube Labels:** We offer high-quality weatherproof lip balm tube labels with tamper-evident tabs. Choose inkjet printer labels (matte only) or laser printer labels (glossy). Both types of labels have a strong adhesive backing. Each kit will come with enough labels for the amount of lip balms you will make as well as a template to create your labels and printing instructions. You have the option of purchasing an additional 5 sheets (60 labels) if desired.

**Shrink bands (plastic sleeves):**
These optional shrink bands are plastic sleeves that fit around your lip balm tubes after you have applied your labels. They will keep your labels clean and protect them from wear, as well as providing a tamper-proof barrier. This shrink band includes a perforation to make accessing the tube easier. You will need a heat gun to shrink these to your lip balm tubes (not included).
Choose 50 shrink bands for $3.00 (Single or Refill Kit) or 300 for $18.00 (Classroom Kit)

**FDA Cosmetic Industry Regulations:**
http://www.fda.gov/Cosmetics/ResourcesForYou/Industry/ucm388736.htm
Labeling Guide
Available in PDF (279KB)
### 4. Profit from Sale of Lip Balm

<table>
<thead>
<tr>
<th>Profit from Sale of Lip Balm</th>
<th>Single Batch Kit (includes 1 filling tray)</th>
<th>Classroom Kit (includes 6 filling trays)</th>
<th>Refill Kit (does not include filling tray)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Makes</td>
<td>50 lip balms</td>
<td>300 lip balms</td>
<td>50 lip balms</td>
</tr>
<tr>
<td>Price (not inc. shipping)</td>
<td>$65</td>
<td>$350</td>
<td>$50</td>
</tr>
<tr>
<td>Your cost per lip balm</td>
<td>$1.30</td>
<td>$1.17</td>
<td>$1.00</td>
</tr>
<tr>
<td>Profit if sold for $1.50 each:</td>
<td>$0.20 per lip balm, $10 profit per kit</td>
<td>$0.33 per lip balm, $99 profit per kit</td>
<td>$0.50 per lip balm, $25 profit per kit</td>
</tr>
<tr>
<td>Profit if sold for $2.00 each:</td>
<td>$0.70 per lip balm, $35 profit per kit</td>
<td>$0.83 per lip balm, $249 profit per kit</td>
<td>$1.00 per lip balm, $50 profit per kit</td>
</tr>
<tr>
<td>Profit if sold for $2.50 each:</td>
<td>$1.20 per lip balm, $60 profit per kit</td>
<td>$1.33 per lip balm, $399 extra per kit</td>
<td>$1.50 per lip balm, $75 profit per kit</td>
</tr>
<tr>
<td>Profit if sold for $3.00 each:</td>
<td>$1.70 per lip balm, $85 profit per kit</td>
<td>$1.83 per lip balm, $549 profit per kit</td>
<td>$2.00 per lip balm, $100 profit per kit</td>
</tr>
</tbody>
</table>

**Should I buy a Single, Refill or Classroom Kit?**

The **Single Kit** has all the ingredients necessary to make 50 lip balms, including a lip balm filling tray. These trays are very handy for filling your lip balms easily, quickly and with less mess and waste of product. Your cost per lip balm will be $1.30.

As you can see, our **Classroom Kit** has the most potential for profit, and will provide up to $549 profit per kit if all 300 lip balms are sold. The Classroom Kit will also save you time by providing 6 lip balm filling trays for 6 teams to make 300 lip balms simultaneously, rather than waiting for each batch of 50 to cool. Perfect for school fundraisers! Your cost per lip balm will be $1.17.

You can buy our **Refill Kit** when your supplies have run low and continue to run this fundraiser for many years to come! One refill kit provides the ingredients needed to make 50 lip balms but does not include the filling tray. Please keep in mind that, while the lip balms may be made without using the filling tray, the project will take considerably longer and more product will be wasted in the process. Your cost per lip balm will be $1.00.

It is up to you if you want to do this project as a class or as teams within a class. We recommend it being done in teams as each student will have a bigger part of the process and learn more about all the stages of being an entrepreneur. It is possible to purchase a Single Kit with Refill Kits and have the students share the filling tray, but it will make it almost impossible to have them all make their products on the same day. If you buy the Classroom Kit once, then the trays can be kept and, in subsequent years, the Refill Kits will be all you need.

No matter which option you select, all of the kits are priced that if you sell the products, they pay for themselves and replenish your budget to cover the costs of resupplying your classroom again. All of the kits also offer the option of being a fund-raiser as well. It is important to our company to provide kits that are financially and ecologically sustainable for our educators and students. If you have any questions or suggestions, please feel free to contact us.