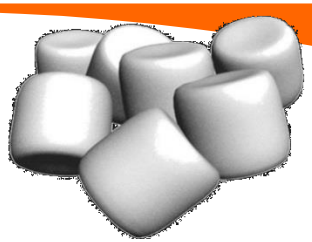
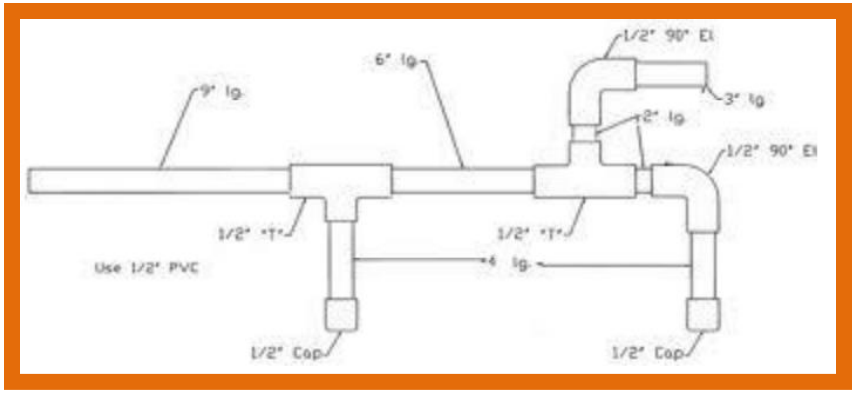
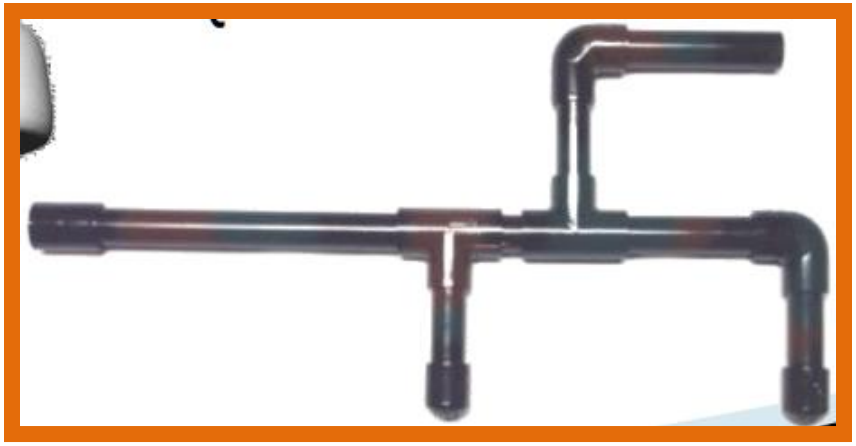


PRODUCT DESIGN





Business Finance: Product Design- Marshmallow Shooter

Having a great idea is easy.
Making money off it
is a lot harder.

Lesson Objective

Students will learn the steps to designing a product, producing it, and pricing it.

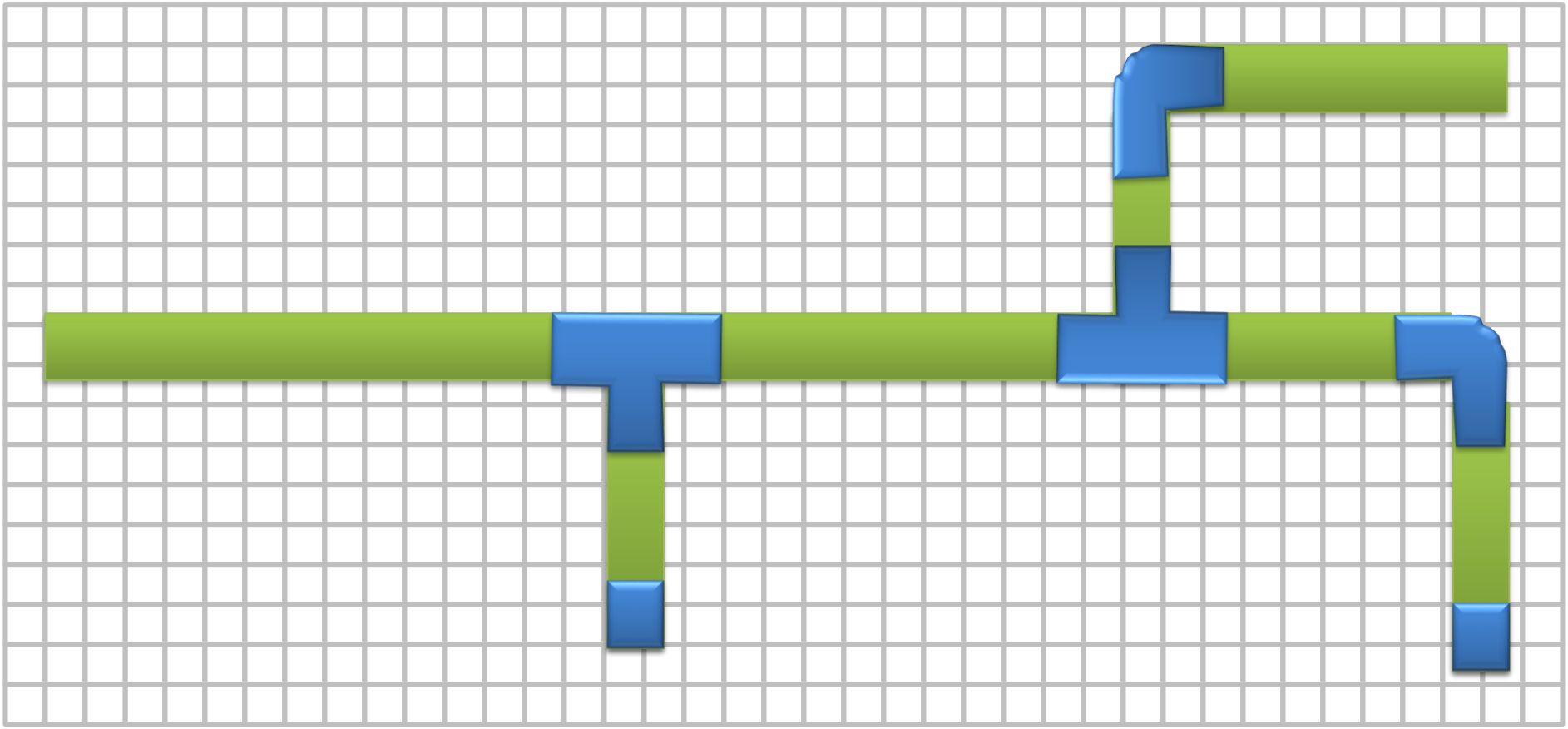
Marshmallow Shooter

Jenny works for a toy manufacturer. She has a cool idea for a marshmallow shooter. But before her company will even consider her idea, she has to complete these three steps to designing a product for sale:

1. Design it
2. Create a Materials List
3. Calculate the Production Cost

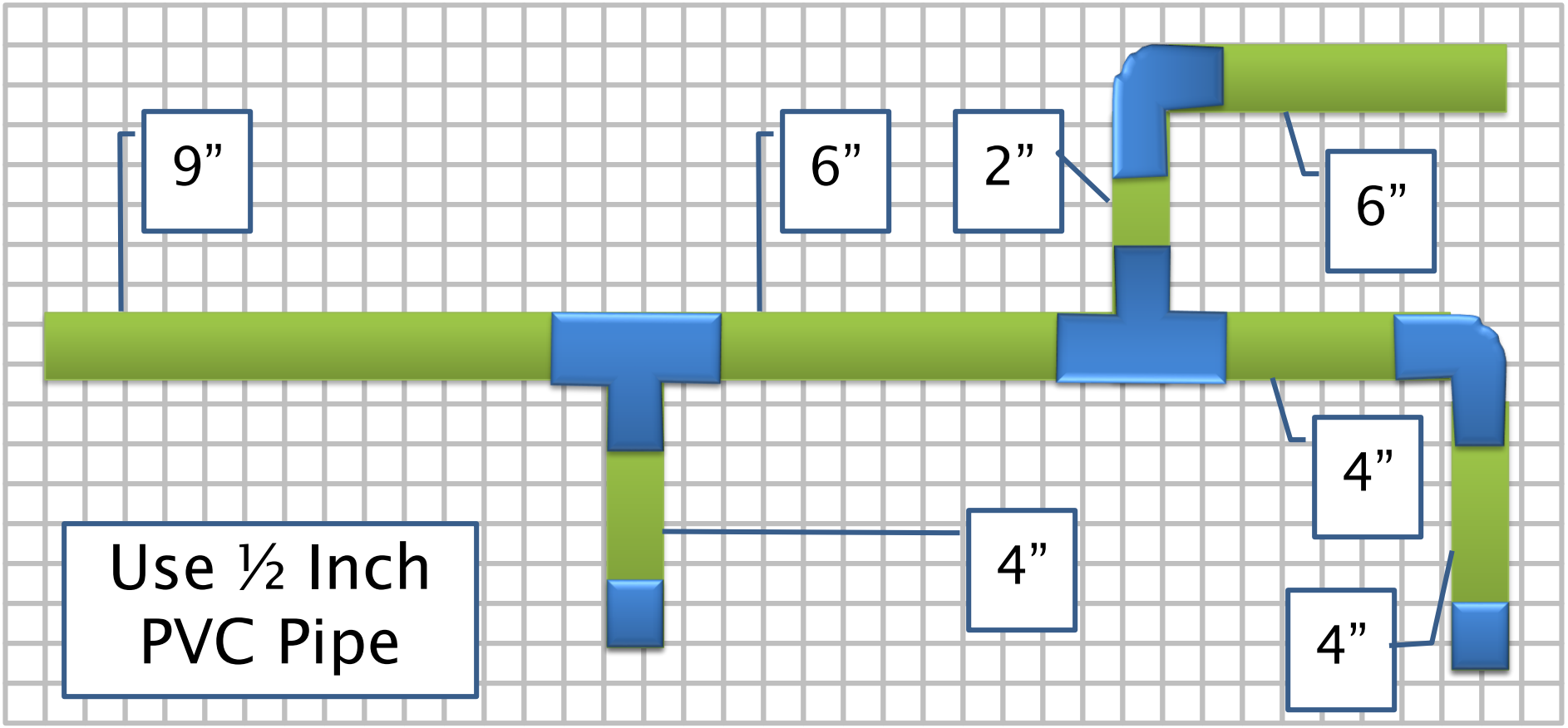
Marshmallow Shooter: Design

Step 1: Jenny begins by drawing out her design and adding measurements.



Marshmallow Shooter: Design

Step 1: Jenny begins by drawing out her design and adding measurements.



Marshmallow Shooter: Design

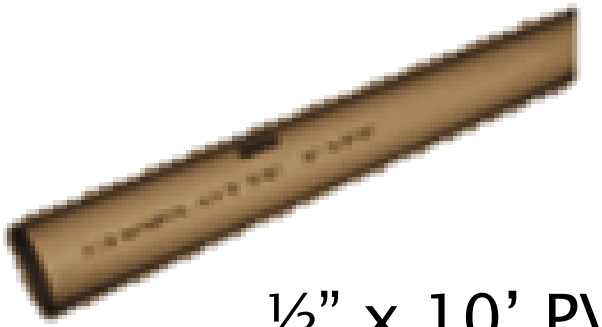
Step 2: Next Jenny creates a materials list.

½" PVC Pipe Pieces	# Needed
9" Pipe	1
6" Pipe	2
4" Pipe	3
2" Pipe	1
Tee	2
90° Elbow	2
Cap	2

Marshmallow Shooter: Design

Step 3: Finally she calculates the production cost based on these prices she found at the hardware store:

½" PVC Cap
$0.31



½" x 10' PVC Pipe
$1.50

½" PVC Tee
$0.27

½" PVC 90° Elbow
$0.20

Marshmallow Shooter: Design

½" PVC Pipe Pieces	# Needed
9" Pipe	1
6" Pipe	2
4" Pipe	3
2" Pipe	1
Tee	2
90° Elbow	2
Cap	2

½" PVC 90° Elbow

$0.20

2 x $0.20 =

Marshmallow Shooter: Design

½" PVC Pipe Pieces	# Needed
9" Pipe	1
6" Pipe	2
4" Pipe	3
2" Pipe	1
Tee	2
90° Elbow	2
Cap	2

½" PVC 90° Elbow

$0.20

2 x $0.20 =

$0.40

Marshmallow Shooter: Design

½" PVC Pipe Pieces	# Needed	Unit Price	Total Price
9" Pipe	1		
6" Pipe	2		
4" Pipe	3		
2" Pipe	1		
Tee	2		
90° Elbow	2	$0.20	$0.40
Cap	2		

Marshmallow Shooter: Design

½" PVC Pipe Pieces	# Needed
9" Pipe	1
6" Pipe	2
4" Pipe	3
2" Pipe	1
Tee	2
90° Elbow	2
Cap	2

½" PVC Cap

$0.31

2 x $0.31 =

Marshmallow Shooter: Design

½" PVC Pipe Pieces	# Needed
9" Pipe	1
6" Pipe	2
4" Pipe	3
2" Pipe	1
Tee	2
90° Elbow	2
Cap	2

½" PVC Cap

$0.31

2 x $0.31 =

$0.62

Marshmallow Shooter: Design

½" PVC Pipe Pieces	# Needed	Unit Price	Total Price
9" Pipe	1		
6" Pipe	2		
4" Pipe	3		
2" Pipe	1		
Tee	2		
90° Elbow	2	$0.20	$0.40
Cap	2	$0.31	$0.62

Marshmallow Shooter: Design

½" PVC Pipe Pieces	# Needed
9" Pipe	1
6" Pipe	2
4" Pipe	3
2" Pipe	1
Tee	2
90° Elbow	2
Cap	2

½" PVC Tee

$0.27

2 x $0.27 =

Marshmallow Shooter: Design

½" PVC Pipe Pieces	# Needed
9" Pipe	1
6" Pipe	2
4" Pipe	3
2" Pipe	1
Tee	2
90° Elbow	2
Cap	2

½" PVC Tee

$0.27

2 x $0.27 =

$0.54

Marshmallow Shooter: Design

½" PVC Pipe Pieces	# Needed	Unit Price	Total Price
9" Pipe	1		
6" Pipe	2		
4" Pipe	3		
2" Pipe	1		
Tee	2	$0.27	$0.54
90° Elbow	2	$0.20	$0.40
Cap	2	$0.31	$0.62

Marshmallow Shooter: Design

½" PVC Pipe Pieces	# Needed
9" Pipe	1
6" Pipe	2
4" Pipe	3
2" Pipe	1
Tee	2
90° Elbow	2
Cap	2

Before Jenny can calculate the price, she needs to know how much pipe she needs total.

½" x 10' PVC Pipe

$1.50

Marshmallow Shooter: Design

Total Pipe = (9” x 1) + (6” x 2) + (4” x 3) + (2” x 1)

½” PVC Pipe Pieces	# Needed
9” Pipe	1
6” Pipe	2
4” Pipe	3
2” Pipe	1
Tee	2
90° Elbow	2
Cap	2

½” x 10’ PVC Pipe

$1.50

Marshmallow Shooter: Design

Total Pipe = (9” x 1) + (6” x 2) + (4” x 3) + (2” x 1)

½” PVC Pipe Pieces	# Needed
9” Pipe	1
6” Pipe	2
4” Pipe	3
2” Pipe	1
Tee	2
90° Elbow	2
Cap	2

Total Pipe =

9” + 12” + 12”+ 2”

½” x 10’ PVC Pipe

$1.50

Marshmallow Shooter: Design

Total Pipe = (9” x 1) + (6” x 2) + (4” x 3) + (2” x 1)

½” PVC Pipe Pieces	# Needed
9” Pipe	1
6” Pipe	2
4” Pipe	3
2” Pipe	1
Tee	2
90° Elbow	2
Cap	2

Total Pipe =

9” + 12” + 12”+ 2”

Total Pipe =

35”

½” x 10’ PVC Pipe

$1.50

Marshmallow Shooter: Design

½" PVC Pipe Pieces	# Needed
9" Pipe	1
6" Pipe	2
4" Pipe	3
2" Pipe	1
Tee	2
90° Elbow	2
Cap	2

Jenny only needs 35" per marshmallow shooter, but the pipe is sold in 10' lengths. So, a little more math is needed.

½" x 10' PVC Pipe

$1.50

Marshmallow Shooter: Design

10’ x 12” per foot = 120” per pipe.

½” PVC Pipe Pieces	# Needed
9” Pipe	1
6” Pipe	2
4” Pipe	3
2” Pipe	1
Tee	2
90° Elbow	2
Cap	2

½” x 10’ PVC Pipe

$1.50

Marshmallow Shooter: Design

½" PVC Pipe Pieces	# Needed
9" Pipe	1
6" Pipe	2
4" Pipe	3
2" Pipe	1
Tee	2
90° Elbow	2
Cap	2

10' x 12" per foot =
120" per pipe.

120" ÷ 35" per shooter =
3 shooters +
15" of leftover pipe

½" x 10' PVC Pipe
$1.50

Marshmallow Shooter: Design

½" PVC Pipe Pieces	# Needed
9" Pipe	1
6" Pipe	2
4" Pipe	3
2" Pipe	1
Tee	2
90° Elbow	2
Cap	2

$1.50 ÷ 3 shooters =
$0.50 per shooter

½" x 10' PVC Pipe
$1.50

Marshmallow Shooter: Design

½" PVC Pipe Pieces	# Needed	Unit Price	Total Price
9" Pipe	1		
6" Pipe	2		$0.50
4" Pipe	3		
2" Pipe	1		
Tee	2	$0.27	$0.54
90° Elbow	2	$0.20	$0.40
Cap	2	$0.31	$0.62

Marshmallow Shooter: Design

½" PVC Pipe Pieces	# Needed	Unit Price	Total Price
9" Pipe	1		
6" Pipe	2		$0.50
4" Pipe	3		
2" Pipe	1		
Tee	2	$0.27	$0.54
90° Elbow	2	$0.20	$0.40
Cap	2	$0.31	$0.62
Total Cost			$2.02

Review:

1. What are the 3 steps to designing a product for sale?

2. What would your cost per shooter be if you use 45" of PVC pipe per shooter, and the pipe cost $2.50 for 8' ? How much pipe would be leftover?

Review:

1. What are the 3 steps to designing a product for sale?
    1. Design it
    2. Create a Materials List
    3. Calculate the Production Cost
2. What would your cost per shooter be if you use 45" of PVC pipe per shooter, and the pipe cost $2.50 for 8' ? How much pipe would be leftover?

    $1.25 per shooter and 6" of pipe leftover