

HOWTOONS!



PARTY GUIDE!

WHAT CAN KIDS MAKE OTHER THAN TROUBLE? A WHOLE LOT! **HOWTOONS** USES COMICS TO SHOW KIDS HOW TO MAKE PROJECTS THAT TEACH ESSENTIAL **STEAM** (SCIENCE, TECHNOLOGY, ENGINEERING, ART, AND MATHEMATICS) CONCEPTS, ALL THROUGH PLAY!

CREATE A MADE-TO-ORDER HOWTOONS EVENT BY CHOOSING THE PROJECTS AND ACTIVITIES IN THIS KIT THAT ARE BEST FOR YOUR STORE AND THE KIDS ATTENDING. YOU CAN INSPIRE A NEW GENERATION OF MAKERS BY TURNING YOUR STORE INTO A POP-UP SCIENCE LAB WHERE SCIENCE AND ART GO HAND-IN-HAND!

6 EASY STEPS... IT'S A HOWTOONS ICE

STEP 1

BAG ONE 1 QUART ZIP-LOC **INGREDIENTS:**

1 cup of heavy cream
1/2 cup of whole milk
1/3 cup of sugar
3/4 teaspoon of vanilla
extract

POUR THE
INGREDIENTS
INTO A
ZIP-LOC
BAG.



2

IT'S IMPORTANT
TO SQUEEZE ALL
THE AIR OUT OF THE
BAG. STILL AIR IS
AN INSULATOR,
PREVENTING HEAT
FROM PASSING
THROUGH IT.



TO FREEZE OUR ICE
CREAM THE FASTEST,
WE DON'T WANT ANY-
THING INSULATING
OUR INGREDIENTS!

3

BAG TWO 1 GALLON ZIP-LOC **FREEZER:**

1/2 gallon of ice
1/2 cup coarse salt

THE SALT AND
ICE COMBINE TO
MAKE A SOLUTION
COLDER THAN THE
FREEZING POINT OF
WATER. BAG TWO
IS A SUPER
FREEZER!



CREAM

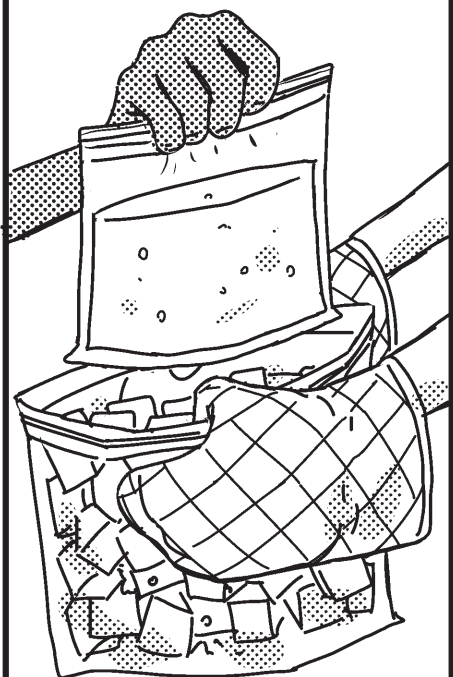


PARTY!

4

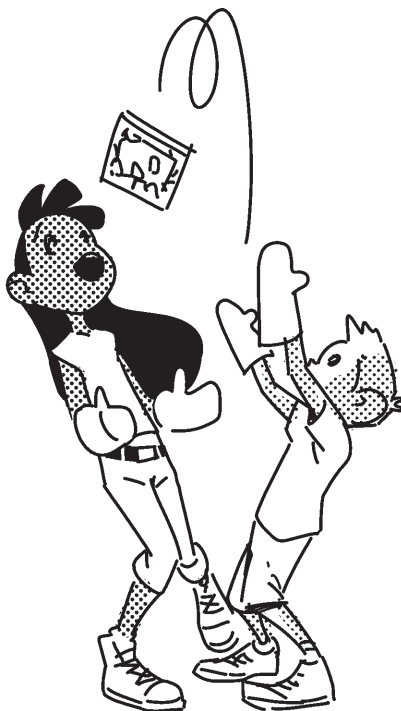
PUT THE
INGREDIENTS
BAG INTO THE
FREEZER BAG,
AND SEAL IT
TIGHT!

WEAR
GLOVES.
BAG TWO
GETS
COLD!



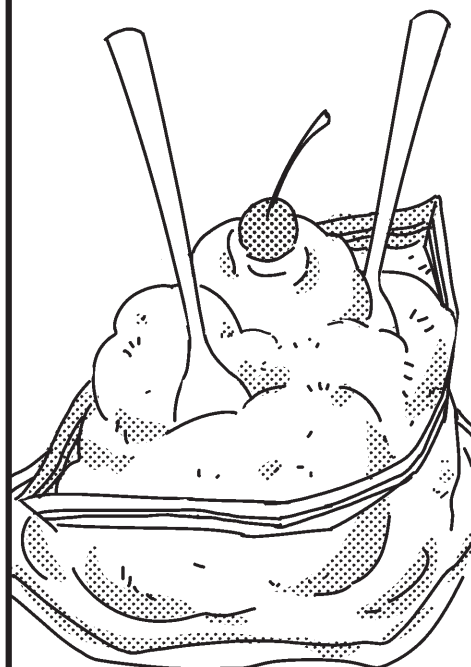
5

TOSS
THE BAG UNTIL
THE ICE CREAM
INGREDIENTS
ARE FIRM.



6

THAT'S IT!
OPEN UP THE
INGREDIENTS
BAG AND
SERVE.

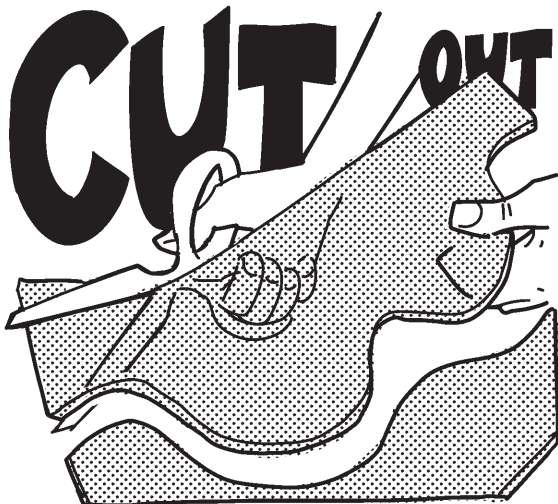
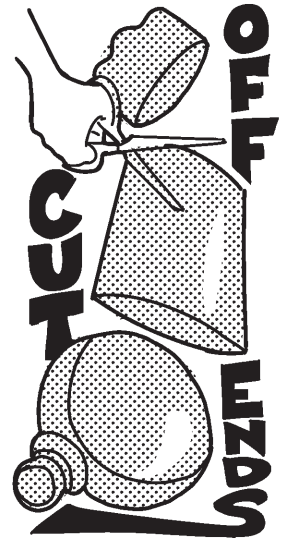
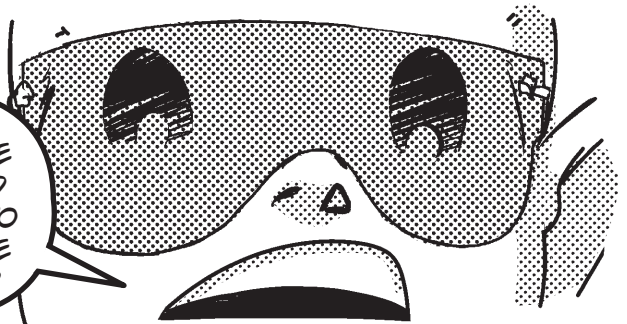


ENJOY!

WHOAH!
BEFORE WE
GET TO THE
PROJECTILES,
LET'S PROTECT
OUR EYES.

WITH... SODA BOTTLE GOGGLES

CAN YOU
FOLLOW THE
WORDS AND
PICTURES TO
MAKE THESE
GOGGLES?

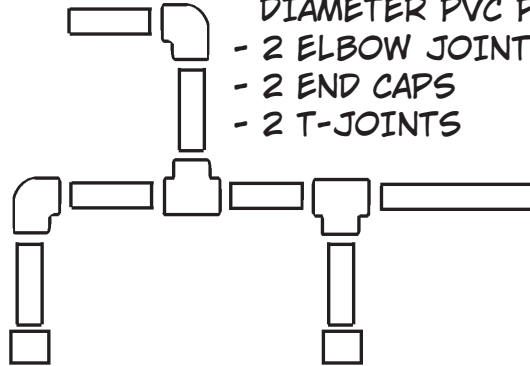


PVC PIPE MARSHMALLOW SHOOTER

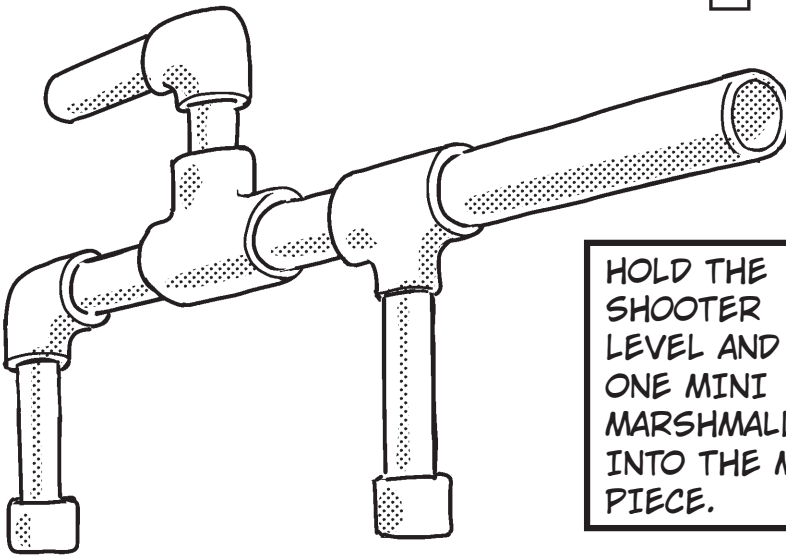
MAKE YOUR **MARSHMALLOW SHOOTER** USING **PVC PIPE**. PVC PIPE AND ITS DIVERSE FITTINGS ALLOW FOR FLEXIBLE DESIGNS, AND ARE OPTIMAL FOR HARNESSING THE POWER OF YOUR LUNGS TO LAUNCH MARSHMALLOWS. IT CAN BE FOUND AT ANY HARDWARE STORE.

MATERIALS:

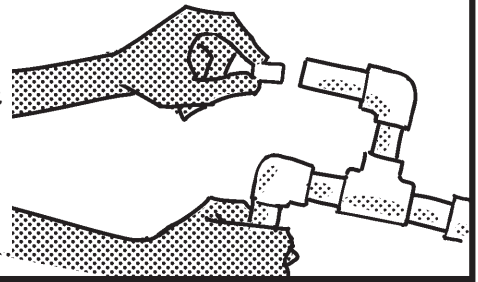
- 24 INCHES OF 1/2" INTERNAL DIAMETER PVC PIPE
- 2 ELBOW JOINTS
- 2 END CAPS
- 2 T-JOINTS



CUT AND ALIGN THE PIECES LIKE SO. USE PVC PIPE CUTTERS OR A HACK-SAW TO CUT THE PIPE. MAKE SURE PIECES ARE PUSHED TOGETHER TIGHT. NO AIR LEAKS.



HOLD THE SHOOTER LEVEL AND PLACE ONE MINI MARSHMALLOW INTO THE MOUTH PIECE.



CREATE THE LAST SEAL WITH YOUR MOUTH. THE ONLY PLACE THE 'MALLOW CAN GO NOW IS OUT THE BARREL.

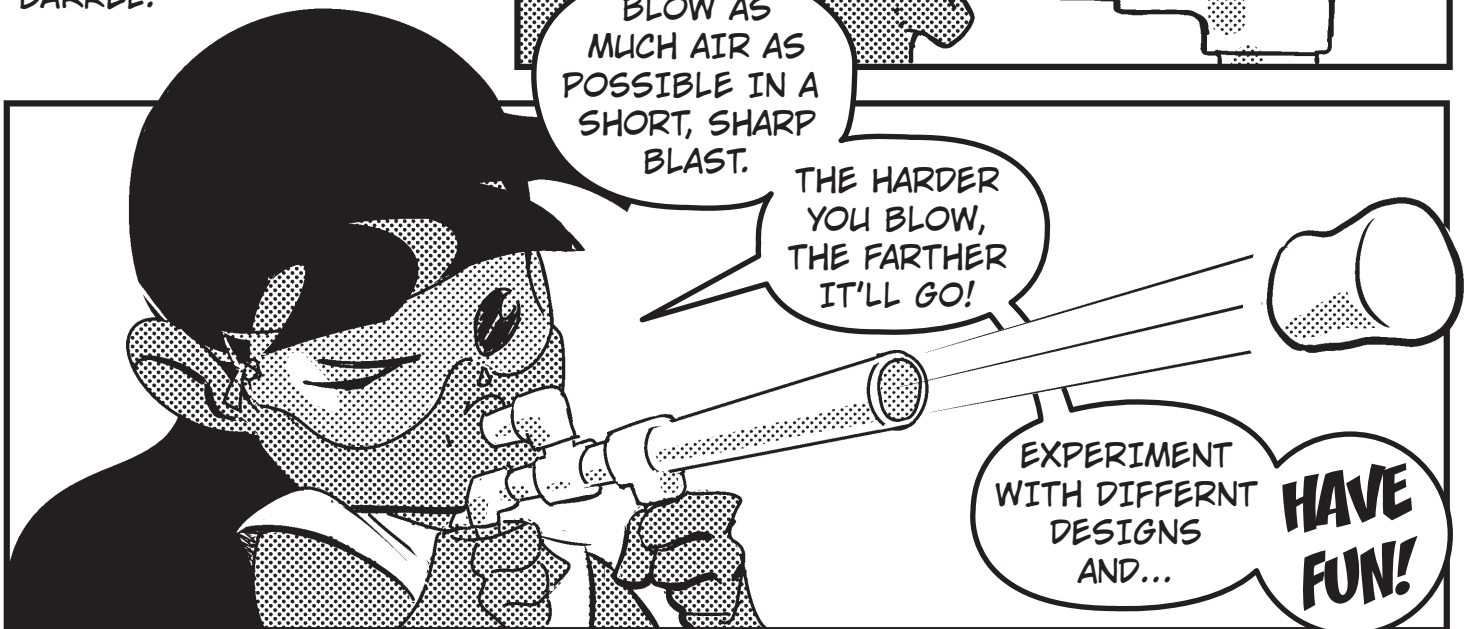


BLOW AS MUCH AIR AS POSSIBLE IN A SHORT, SHARP BLAST.

THE HARDER YOU BLOW, THE FARTHER IT'LL GO!

EXPERIMENT WITH DIFFERNT DESIGNS AND...

HAVE FUN!

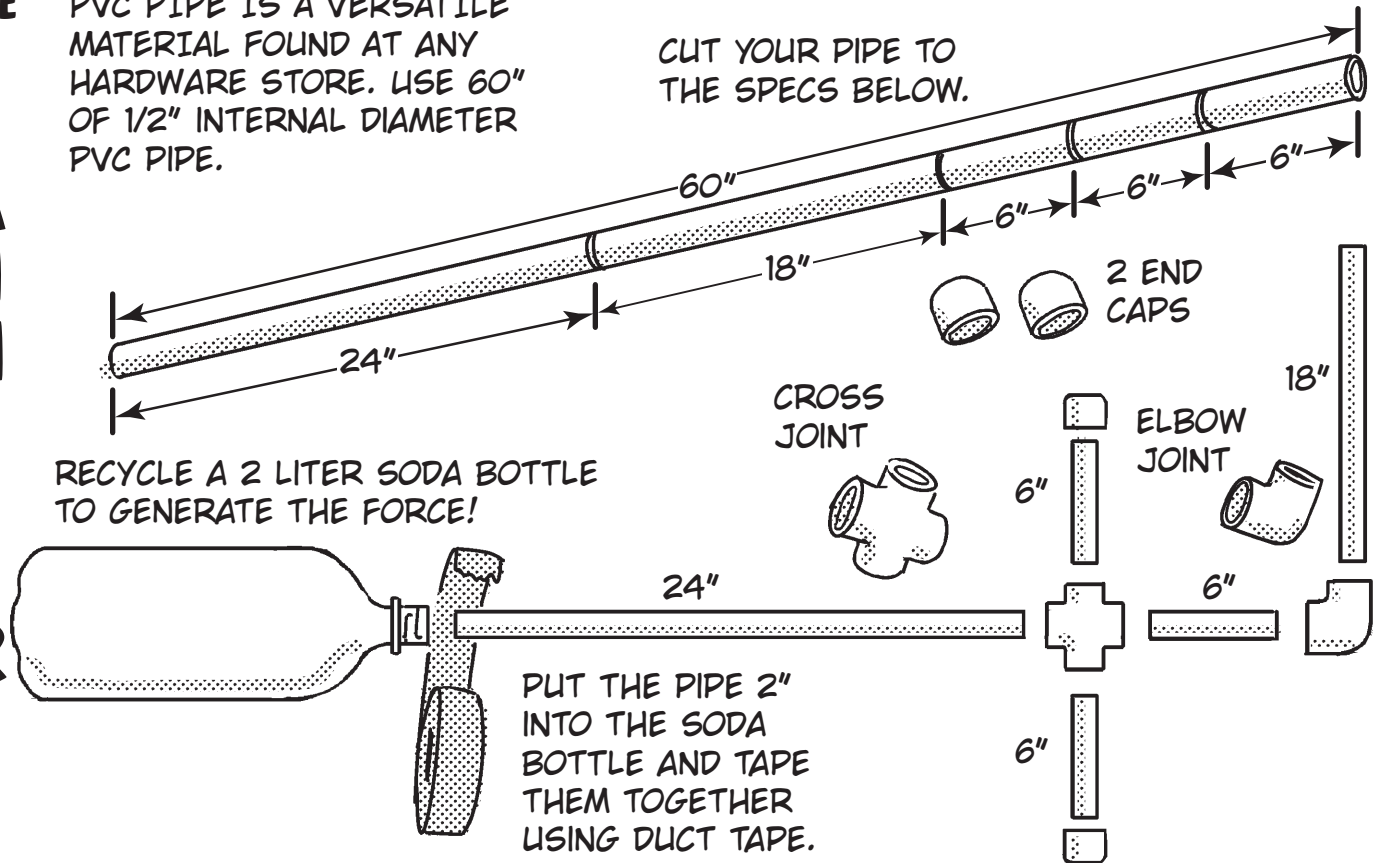


StompROCKET

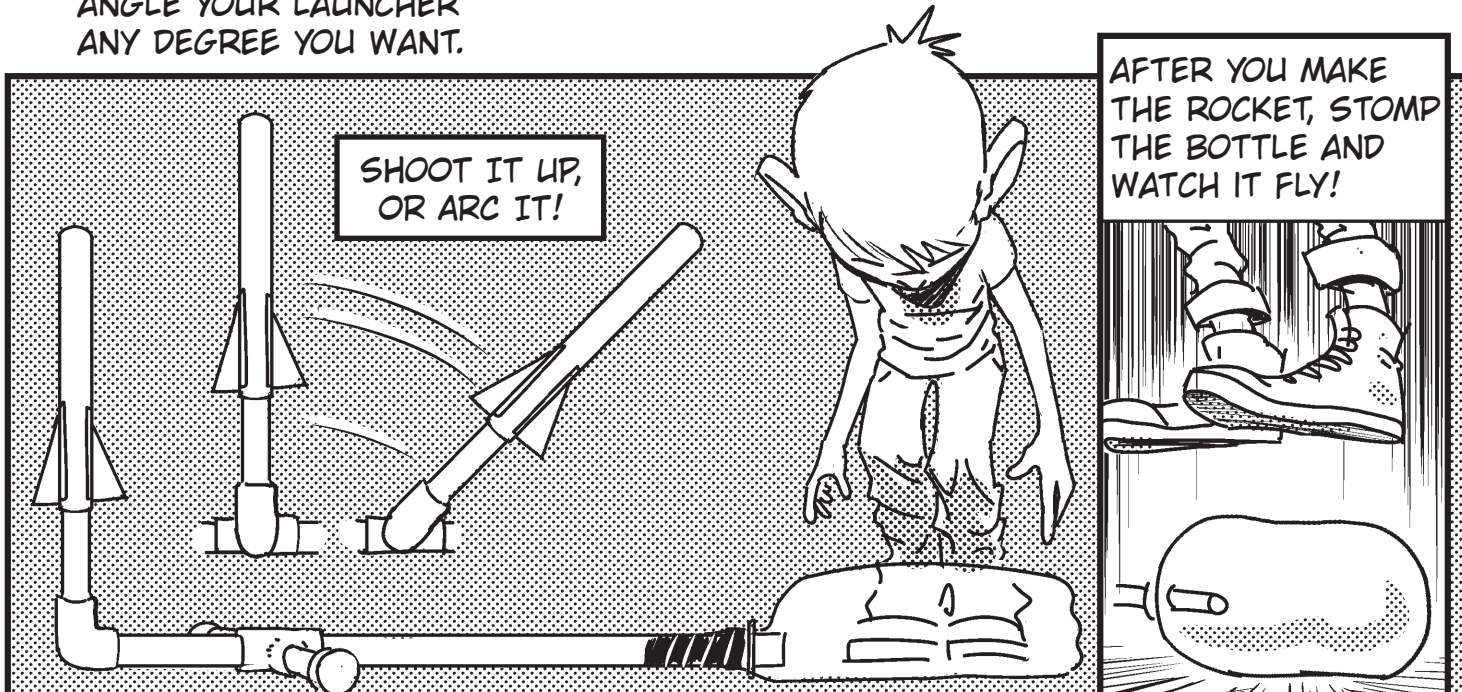
MAKE THE LAUNCHER

PVC PIPE IS A VERSATILE MATERIAL FOUND AT ANY HARDWARE STORE. USE 60" OF 1/2" INTERNAL DIAMETER PVC PIPE.

CUT YOUR PIPE TO THE SPECS BELOW.

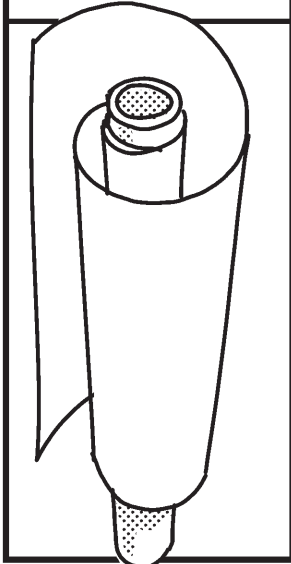


ANGLE YOUR LAUNCHER ANY DEGREE YOU WANT.

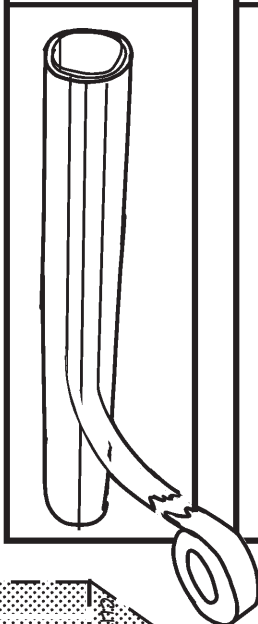


MAKE THE ROCKET

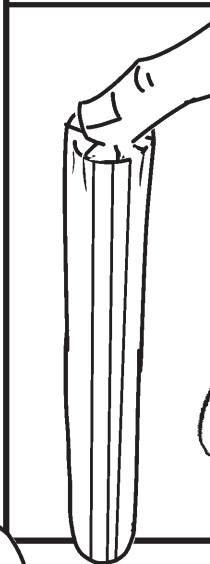
USE 8.5"X11" PAPER TO MAKE YOUR ROCKETS. LOOSELY WRAP AROUND THE PIPE.



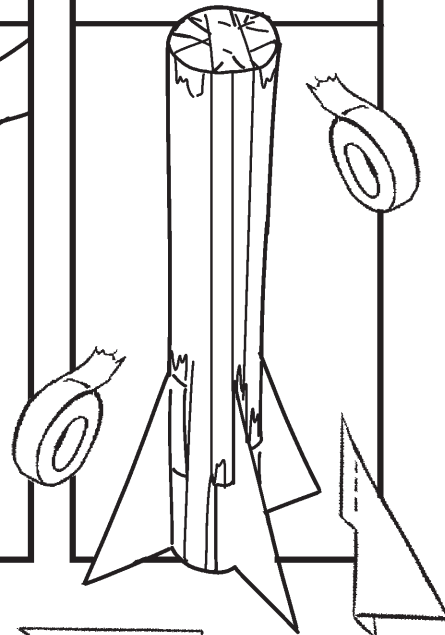
TAPE DOWN THE SEAM.



USE YOUR FINGER TO CLOSE THE NOSE OF THE ROCKET.



SEAL THE NOSE WITH TAPE TO AVOID AIR LEAKS.



CUT OUT FINS ALONG DOTTED LINES

FOLD

CUT OUT FINS ALONG DOTTED LINES

FOLD

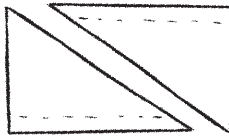
CUT OUT FINS ALONG DOTTED LINES

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FOLD

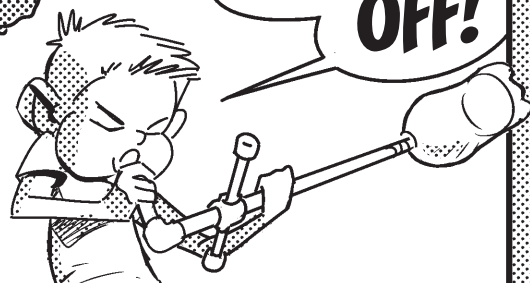
CUT OUT FINS ALONG DOTTED LINES

CUT OUT OR TRACE THE 3 STABILIZING FINS ON THIS SHEET AND ATTACH TO THE BOTTOM OF ROCKET, SPACED 1/3" APART.



BLOW INTO THE PIPE TO PUT AIR BACK INTO THE BOTTLE AND...

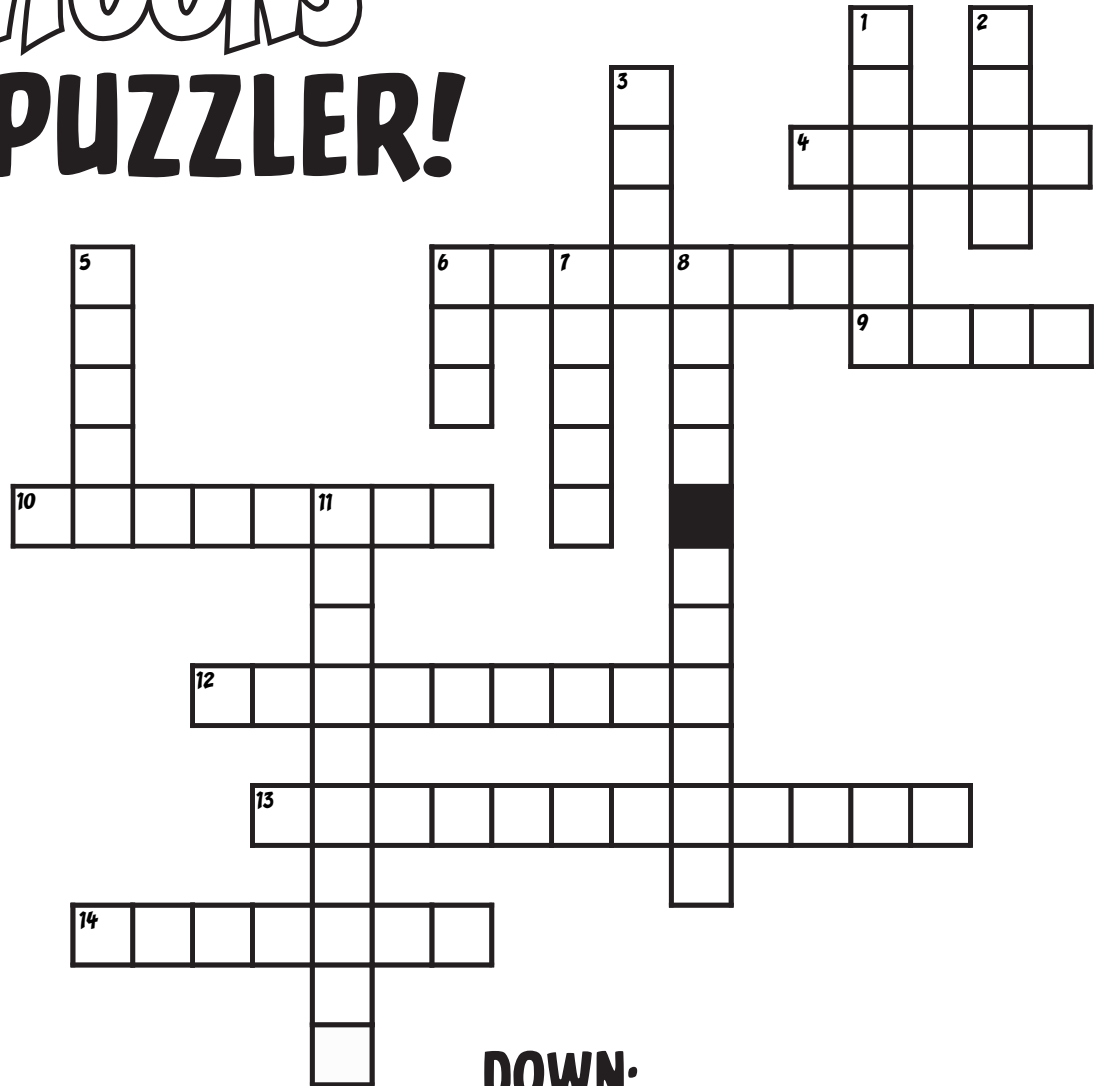
BLAST OFF!



HOWTOONS PUZZLER!

ANSWERS:

ACROSS: 4) FORCE 6) PRESSURE 9) SALT 10) FRICTION 12) BLUEPRINT 13) MARSHMALLOWS 14) GRAVITY
DOWN: 1) GLOVES 2) INCH 3) FINIS 5) PAPER 6) PVC 7) ELBOW 8) SODA BOTTLE 11) INSULATION

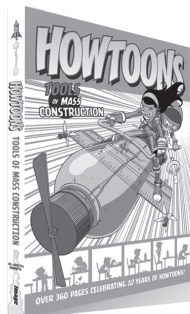


ACROSS:

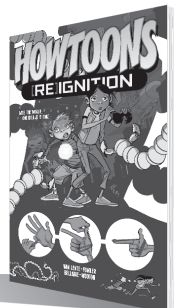
4. PUSH OR PULL THAT MOVES THE MARSHMALLOW THROUGH THE PIPE
6. IT MAKES A STOMP ROCKET FLY
9. IT LOWERS THE FREEZING POINT OF ICE
10. RESISTING MOTION
12. DRAWING THAT SHOWS HOW TO MAKE SOMETHING
13. SWEET PROJECTILES
14. WHAT GOES UP MUST COME DOWN

DOWN:

1. THEY PROTECT HANDS WHILE MAKING ICE CREAM
2. 1/12TH OF A FOOT
3. THEY KEEP THE ROCKET FLYING STRAIGHT
5. ROCKET MATERIAL
6. KIND OF PIPE USED FOR MARSHMALLOW SHOOTERS
7. A TYPE OF JOINT
8. GOGGLE MATERIAL
11. IT REDUCES THE TRANSFER OF HEAT



**AVAILABLE
WHEREVER
BOOKS ARE
SOLD!**



HOWTOONS: TOOLS OF MASS CONSTRUCTION TP - 978-1-63215-101-8
HOWTOONS: [RE]IGNITION VOL. 1 TP - 978-1-63215-056-1
howtoons.com

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