BUILD A BETTER PUCK

THE GAME OF HOCKEY IS INCREDIBLE!
Like most things though, it is much different than what was originally imagined by its creators. The game is so much faster, more physical, and more skilled than its earlier eras. A big reason why is thanks to technology. From the protective equipment we wear, the sticks we hold, and the way we care for our bodies, technology has impacted almost every part of the game and the people who play it. However, there is one very important object that has almost entirely remained unchanged. ***THAT'S RIGHT...THE PUCK!***

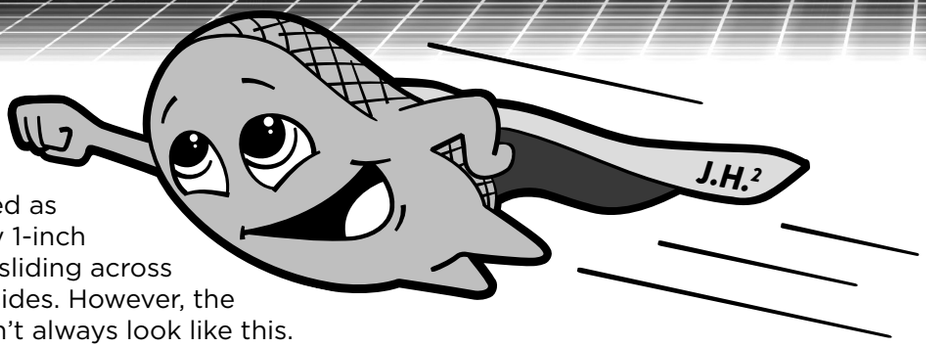
For such a small piece of the game, it sure does command a lot of attention. Players and fans alike follow its every movement. A rubber disc with a little paint can make crowds cheer or players wince in pain. Sounds like something we should learn a little more about...don't you think? Let's discover its history, learn how and why it was made, and, most importantly, how we can improve it!

Not sure how to make it better? Don't worry, we've got you covered. The information in this workbook will teach you how to think, design, and build like an engineer...a puck engineer.

By the time you reach the end of the book you'll have what it takes to "Build A Better Puck". That's good because we're going to ask you to do just that. Those of you up to the task might even see your new and improved puck featured on ice at Honda Center on **February 27th** for the First Flight Field Trip. Asks lots of questions, read, take notes, watch some hockey, and have some fun.

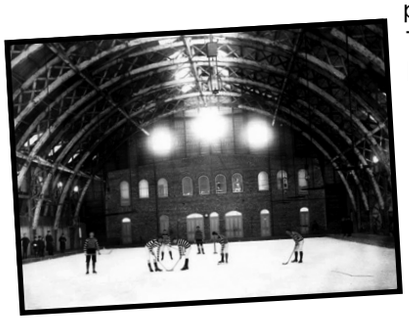
READY TO GET STARTED?
WE ARE TOO!
LET'S "BUILD A BETTER PUCK"!

A PUCK-STORY



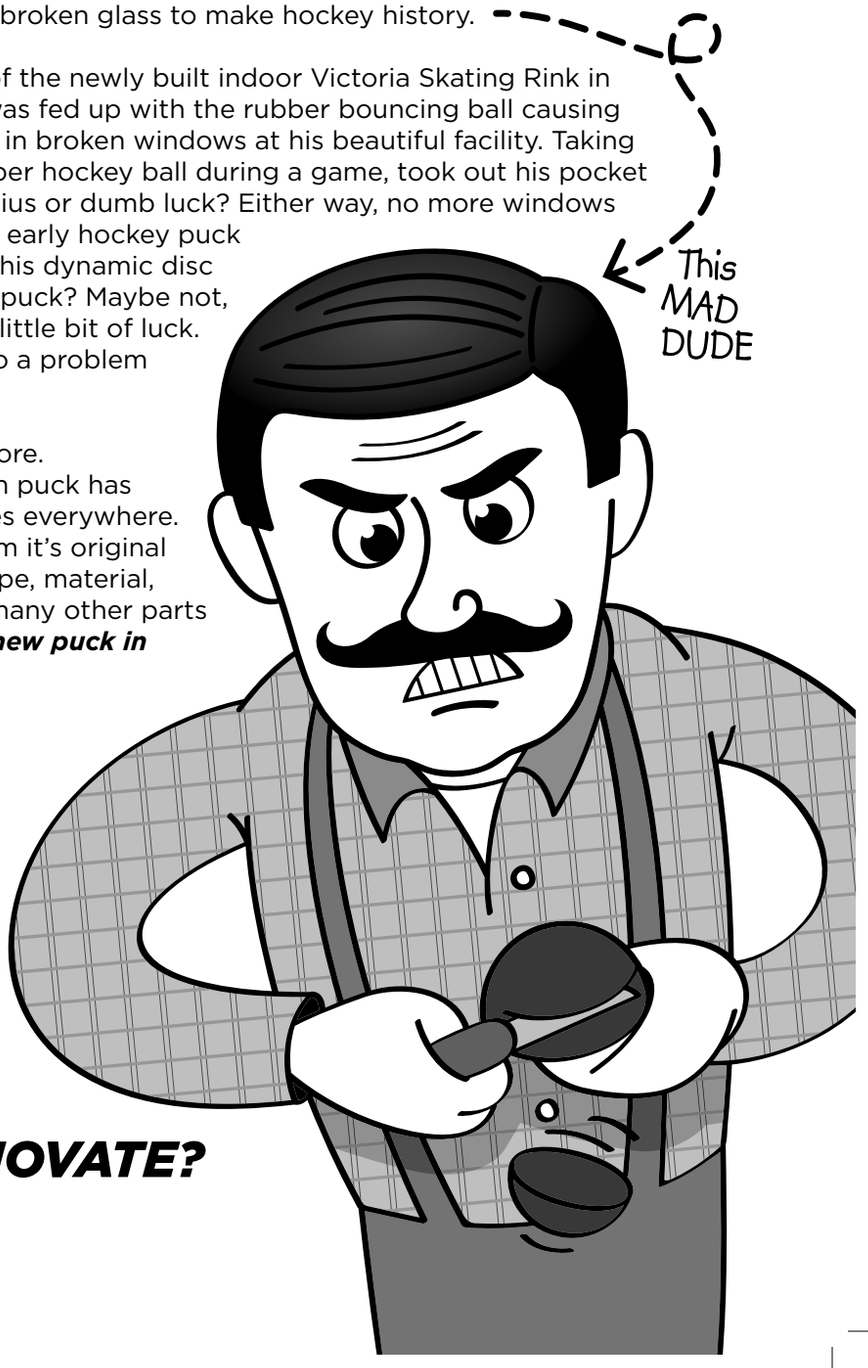
A DYNAMIC DISC

There are few objects in all of sports that are as dynamic and oddly shaped as the hockey puck. This 3-inch wide by 1-inch thick object spends most of its time sliding across an ice surface on one of its two flat sides. However, the puck didn't always look like this.

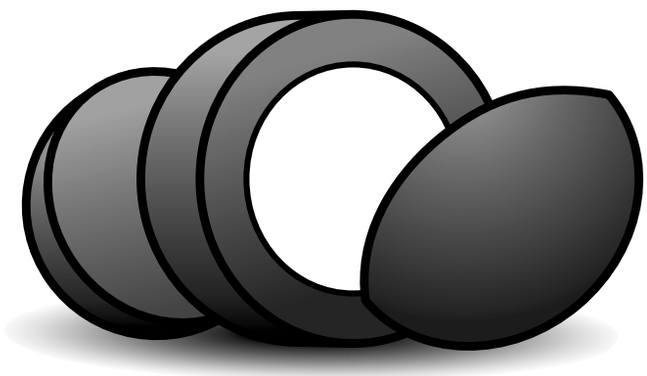


That's because hockey was once played with a ball back in the early 1800's when the game was first introduced to the world. By the mid-1800's, small slabs of stone, pieces of wood and leather, a rubber ball, and even cow droppings were used. So, how did the puck finally slide into the game? It took an angry Canadian rink owner, bad bounces, and some broken glass to make hockey history.

In 1875, the owner of the newly built indoor Victoria Skating Rink in Montreal, Canada was fed up with the rubber bouncing ball causing hundreds of dollars in broken windows at his beautiful facility. Taking matters into his own hands, he grabbed the rubber hockey ball during a game, took out his pocket knife, and sliced the ball into three sections. Genius or dumb luck? Either way, no more windows were shattered that day and the concept for the early hockey puck was born. Did this raging rink owner know that this dynamic disc would be the inspiration for the modern hockey puck? Maybe not, but inventors like Thomas Edison also needed a little bit of luck. This new puck changed hockey forever thanks to a problem and someone who tried to solve it.



Pucks aren't made by cutting rubber balls anymore. Manufacturing has come a long way so that each puck has the same quality and durability for hockey games everywhere. That said, today's puck isn't too far removed from it's original form. They have remained roughly the same shape, material, size, weight, texture, and color even though so many other parts of the game have changed. ***Is there room for a new puck in hockey? Let's find out!***



ARE YOU READY TO INNOVATE?

DESIGN-A-PUCK

Hockey pucks are fascinating objects because of their ability to fly around the rink at fast and exciting speeds, but also because they are pieces of art! An official game puck has pictures printed on them. These pictures are specifically designed for the Anaheim Ducks. What would your design look like?

Now that you know the Puck-Story, it's your time to design a puck for the Anaheim Ducks. Take a look at the empty puck on this page. It's your job to fill it in! Tap into your creative side by using the empty space to draw your own picture. If you want to enter our Design-A-Puck contest for great prices, scan or take a picture of your design and email it to **score@anaheimducks.com**. Send it in by **February 16th, 2024** for a chance for your creation to be displayed on the jumbotron at First Flight Field Trip!

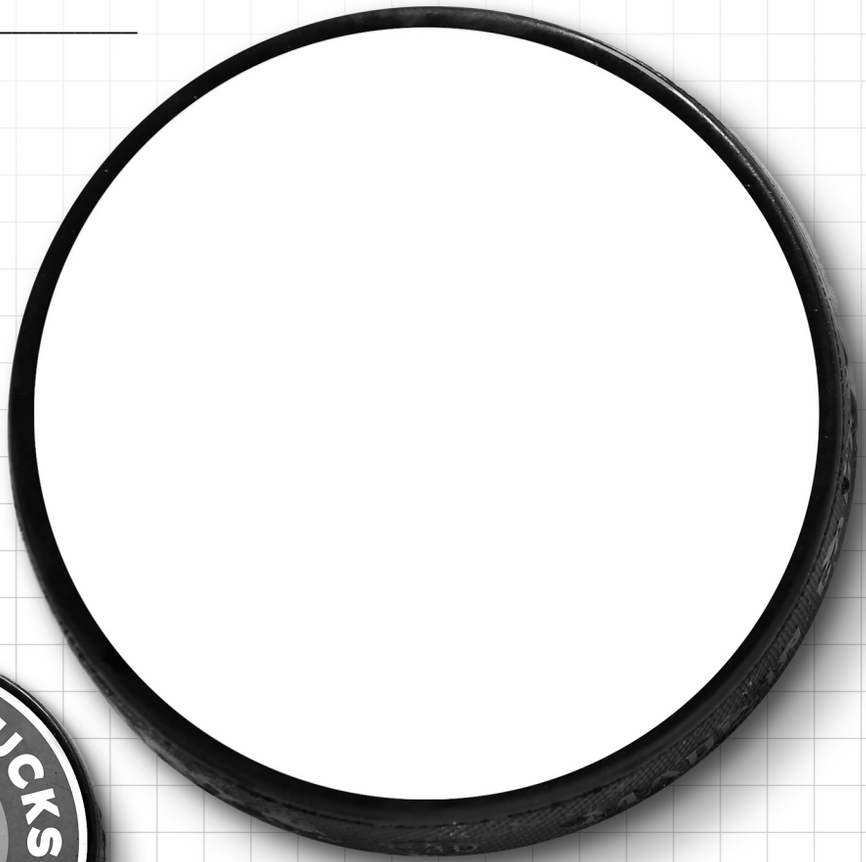
Name_____

School_____

Teacher_____

Grade_____

HERE ARE SOME EXAMPLES FOR INSPIRATION!



THINK LIKE AN ENGINEER

ENGINEER: (N) A person who designs, builds, and invents machines, roads, buildings, objects, etc.

ENGINEERING DESIGN PROCESS

The engineering design process is another tool engineers use to accomplish their tasks and improve upon the things they use daily. Read about the design process below and fill in the stack of pucks to the best of your ability. Come back to this page anytime you need some guidance, especially when you take on the **"Build A Better Puck Challenge"**.

1 Ask a Question

Thinking big always starts with a big question. **What problem do you want to solve or what object do you want to build and improve upon?**

2 Gather Information

You don't need to memorize every fact or formula. Instead, what's important is how you research and use the information that's out there. **Where are you going to look?**

3 Brainstorm & Plan

Work alone or with a large group to create a list of ideas and supplies you'll need to answer the question. **What ideas do you have in your head?**

4 Build, Test, & Redesign

Make your best ideas and solutions come to life! Create a model and see if it accomplishes the task that you set out to do. If it doesn't, don't worry, even the best engineers have to go back to the drawing board. **How will you build, test, and improve your design?**

5 Share!

Don't keep that design a secret! Imagine a world where no one shared their ideas. There wouldn't be life-saving medical equipment or spacecraft to explore the universe. **How will you share your work with others?**

Share your "Build A Better Puck" photos, videos, and designs on social media using **#ducksfirstflight** or email them to **score@anaheimducks.com**. We can't wait to see your projects and share them throughout the event on **February 27!**

MOVEMENT ONE: STICKHANDLING

Moving the puck with a hockey stick is called **stickhandling**. Players use this skill to keep control of it. It's done by "cradling" the puck continuously from a stick blade's forehand to its backhand. National Hockey League players are so good at stickhandling the puck they can do it while skating at fast speeds, during a sharp turn, or when stopping on a dime. You're in for a treat any time a player "dangles" the puck to get around an opponent.

COACHES CHALLENGE

If you don't have a hockey stick and puck, you can replicate stickhandling moves using an object with a flat side and your hand. Let's try it!

STEP 1 Cup your right hand like the diagram to the right. Hockey players use a curved stick blade to help them control the "puck" better.

STEP 2 Place your hand and object on a table. Position the "puck" so that it sits inside the cup of your hand.

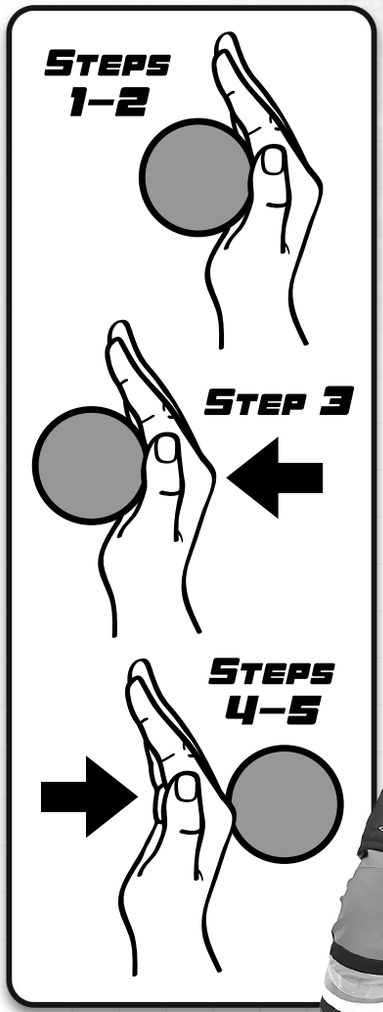
STEP 3 Now slide the "puck" forward *(to the left)* with your hand.

STEP 4 Lift your hand and position the back of your hand so that it's touching the "puck".

STEP 5 Slide the "puck" towards the opposite direction *(to the right)*.

STEP 6 Repeat steps 3-6 until you get the hang of it. Increase your speed until you can do it without looking down at your hand.

NOW YOU'RE STICKHANDLING!



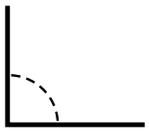
STICKHANDLING

MOVEMENT TWO: PASSING

Passing is one of the most important skills in hockey. The Ducks can make sliding the puck to a teammate a work of art. A direct pass, moving in a straight line, is the quickest way to get the puck to another player... but it's also the easiest for an opponent to steal. That's why hockey players rely on math to get the job done right.

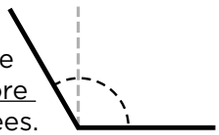
Players use their knowledge of angles and a little help from the boards that surround the ice to make passes around opponents. So what's an **angle**? It's the amount of space at the spot where two lines meet. Angles are everywhere and can be used to form shapes. You can make all sorts of shapes using three types of angles – **acute**, **obtuse**, and **right**.

A **right** angle is exactly 90 degrees.



An **acute** angle measures less than 90 degrees.

An **obtuse** angle measures more than 90 degrees.



IN SHAPE

Find and label the angles (acute, obtuse, or right) in each shape. Then, write down the number of angles needed to make it.

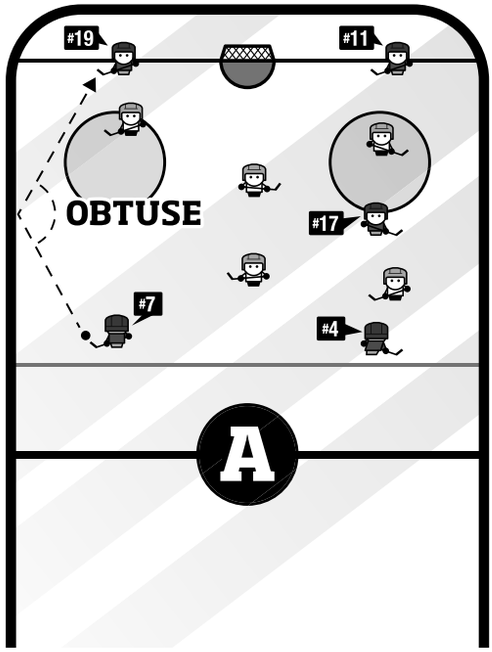
Shape	*Square*	*Triangle*	*Octagon*
Number of Angles	_____	_____	_____

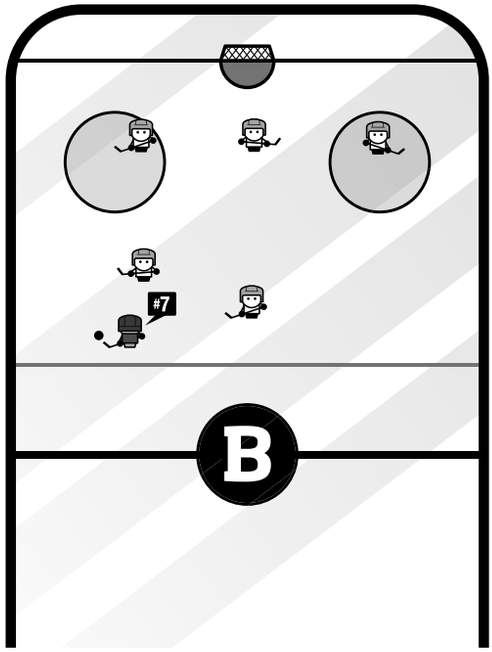
COACHES CHALLENGE

Now it's your turn to help the Ducks pass the puck! In Picture A, make a pass by drawing lines to teammates and labeling the angles you use. For Picture B, you'll need to place the Ducks in the right spot before making the pass. Here's the challenge. Use all three angles!

LEGEND

- **Pass** – – – ▶
- **Puck** ●
- **Ducks**
- **Opponent**
- **Goal**





MOVEMENT THREE: SHOOTING

Hockey is one of the fastest sports in the world, thanks to the puck! There are many ways to shoot the puck but the hardest type of shot is called a **slapshot**. It gets its nickname because of the "slap" that's heard during this shot. After the stick blade makes full contact with the puck's edge, it's sent towards the goalie at rocket-like speeds. The fastest slapshot ever recorded travelled 108.8 miles per hour (or 160 feet per second). A shot like this doesn't give the goalie much time to react. So, how fast do goalies need to be? **We can find out by using a little more math!**

STEP 1

GET THE FACTS

Formula: d = r x t

Distance [d] = 80 feet

Rate [r] = 160 feet/second

Time [t] = ???

STEP 2

SUBSTITUTE

Place the values into the equation:

d = r x t

80 feet = 160 feet/second x t

STEP 3

DIVIDE!*

80 feet = 160 feet/second x t

÷

Time [t] = 0.5 seconds

*If you don't know how to do this by hand, think about what tool you could use to help you.

Because **t = 0.5** seconds, Ducks goalie John Gibson knows he has half a second to get his glove or blocker ready to stop the puck from a slapshot taken 80 feet away from him.

COACHES CHALLENGE

Complete the chart below. You'll need to first circle the correct function (+,-, x, or ÷) that will help you find the time [t] Gibson has to stop a slapshot traveling at an NHL average of 85 miles per hour (or 125 feet per second).

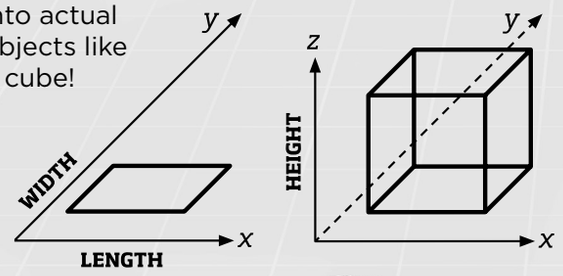
Distance [d] From the goal	Function (Circle one)	Rate [r] Speed of puck		Time [t] To reach Gibson
5 feet	+	125 feet/second	=	0.__ Seconds
25 feet	-	125 feet/second		0.__ Seconds
50 feet	x	125 feet/second		0.__ Seconds
75 feet	÷	125 feet/second		0.__ Seconds

SHOOTING

THE THIRD DIMENSION

Did you know that building a puck and building a hockey team like the Anaheim Ducks are similar tasks? It's because a hockey team with three dimensions is important for a complete team. Instead of **length**, **width**, and **height**, Ducks General Manager Pat Verbeek builds his team with three positions called **forwards**, **defense**, and **goalies**.

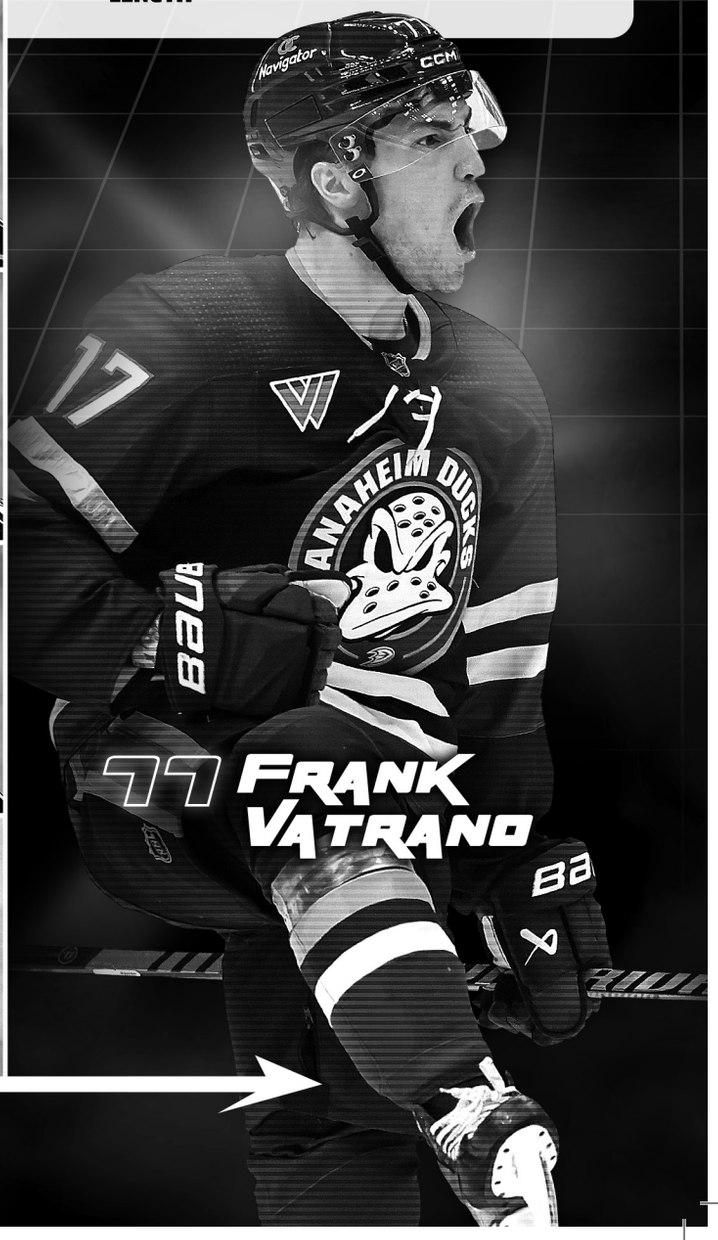
A **dimension (D)** is a way to describe an object. A shape like a square is in 2D because its two parts, **length** and **width**, can be drawn on two axis. If you've ever drawn a chart or graph before, you probably used a coordinate system made up of an **x-axis** and **y-axis**. Objects in 3D have 2D parts, but they also have a third dimension called **height**. It's represented by a **z-axis**. This is the thing that turns flat shapes into actual objects like a cube!



The Three Dimensions of a Hockey Team

Forwards

Their main focus is to score the puck.



*Roster as of 1/1/24

THE THIRD DIMENSION

Defensemen

Their main job is to keep the other team from scoring by playing defense.

34
Pavel Mintyukov

Goalies

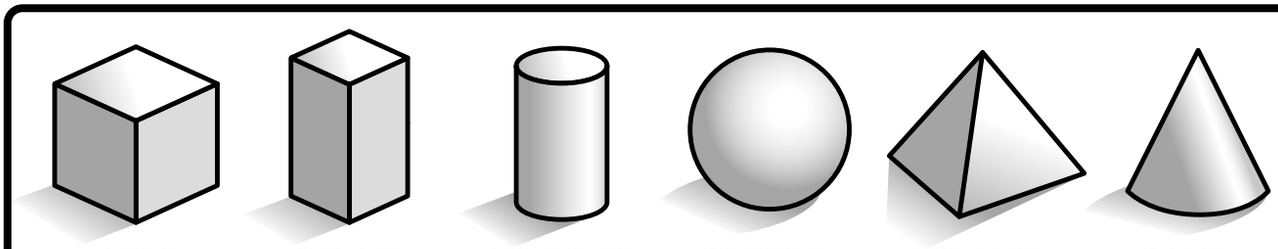
The goalie's main objective is to keep the puck out of the net.

36
John Gibson

THE THIRD DIMENSION

Two-dimensional and three-dimensional shapes are important because they're all around us. These shapes can be found in nature, food, and even in hockey. All objects are made of shapes. They can be simple objects made of a single shape or a complicated one, made up of many, put together. ***What would happen if the things we use every day were shaped differently?*** Would macaroni pasta be tastier as a pyramid or would the ride to school be smoother if tires were cubes?

Changing a puck's shape also changes the way it moves during a hockey game. In order to design a better puck, it's going to take the basic knowledge of 3D shapes to make the right changes!

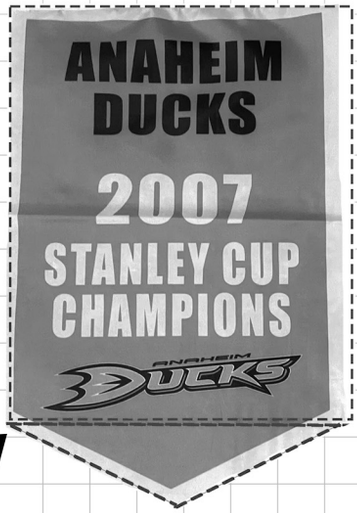


CUBE **CUBOID** **CYLINDER** **SPHERE** **PYRAMID** **CONE**

What everyday objects are made of these shapes? Write down some examples of items found around your home or at school.

Pucks are flat, solid, and circular. What kind of shape do you think it is? Circle the shape above that looks similar to a hockey puck.

Combine shapes to create an object you've seen around school or at home!



What shapes make up the Stanley Cup Banner?

THE THIRD DIMENSION

COACHES CHALLENGE

It's time to put these 3D shapes to the test! How will the puck change the game if it were shaped like the ones on page 10? **Stickhandle**, **pass**, and **shoot** your way to the answer.

MATERIALS

1. **Collect objects that resemble each of the shapes on page 10**
2. **Your hand**
3. **Masking tape** *(colored tape is best!)*
4. **A book or a wall**

Stickhandling

Use the stickhandling activity found on page 5.

1. Which shapes were easy to stickhandle? How did their shape help you?

2. Which shapes were difficult to stickhandle? Why did their shape make it more difficult?

Passing

How will these shapes affect passing?

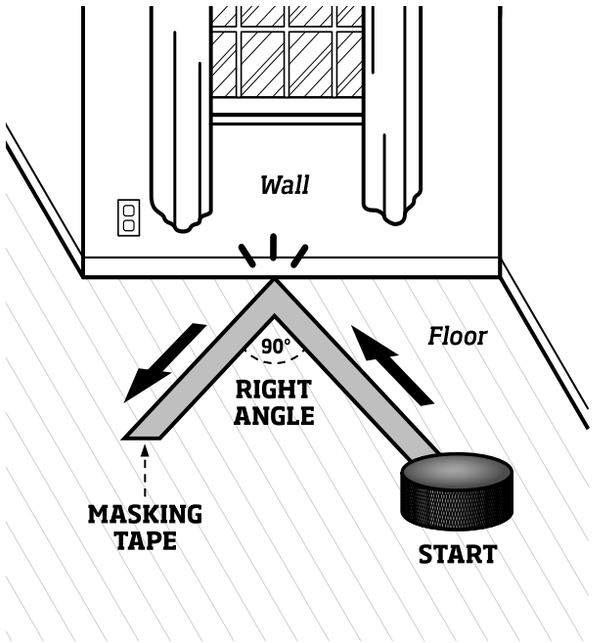
STEP 1 Place some tape on the floor to form a right angle like the picture to the right.

STEP 2 Take your first object and place it at the starting point.

STEP 3 Slide your puck into a book or wall so that it follows the path of the tape.

STEP 4 Did the shape follow the path? Record the results in your journal.

STEP 5 Repeat steps 2-4 for the other shapes.



1. Which shapes allowed you to pass the puck accurately? Why do you think they passed the test?

2. Which shapes didn't pass the test? Why did they fail?

Shooting

What would happen if Ducks forward Troy Terry took a slapshot with pucks of these shapes? Remember, in order to shoot the puck at rocket like speeds, the curved stick blade must make full contact with it!

RUBBER PUCKY

Materials matter. So what are they, exactly? They're the stuff that all things are made from. **Materials** can be hard, soft, or anything in between. It can be natural like wood or, man-made, like plastics. Designing objects isn't just about getting the size and shape right. You have to choose the right material. Building a car out of pillows might seem like a great idea to keep everyone comfortable. But what happens when it rains? Materials are important. Especially for a puck!

Hockey pucks are made with vulcanized rubber. It's a special type of rubber that's durable enough to withstand the hardest of slapshots from NHL players like Ducks defenseman Cam Fowler. But what would happen to the puck if it was made from something else? Are there materials that will help a puck's movement? Are there ones that will hurt it? Let's investigate the properties of different materials to find out!

HOW IT'S MADE

COACHES CHALLENGE

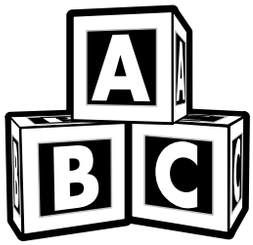
Put the following materials through a rigorous test. You're going to drop, bend, dunk, and squeeze your way through this activity. Use the chart on page 15 to record all the interesting things you see!

STEP 1

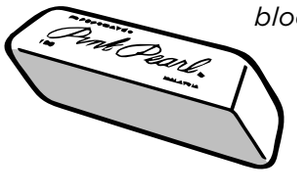
Gather Materials
You'll need to find objects made from the following materials:

Vulcanized Rubber
(hockey puck, sneaker soles, or tires)*

On second thought, no tires!

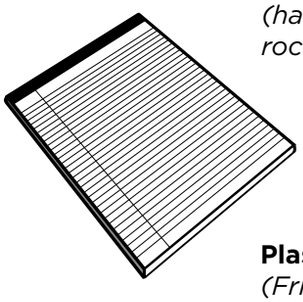


Wood
(pencil, alphabet block, etc.)

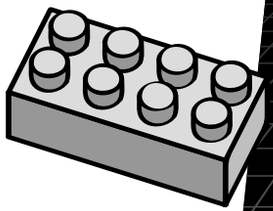


Soft Rubber
(racquet ball, eraser, etc.)

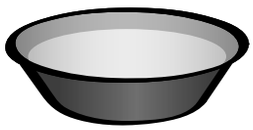
Sugar
(hard candy, rock candy, etc.)



Paper
(cardboard, drink coaster, etc.)



Plastic
(Frisbee, building block, etc.)



Bowl of Water

PROPERTIES OF MATERIALS

QUESTIONS TO ASK YOURSELF:

DURABLE
Will it break?
Try doing a drop test.

HARDNESS
Will it keep its shape?
Try to dent it.

ELASTIC
Will it return to form?
Bend, stretch, and bounce your object.

WATERPROOF
Will it stay dry?
Dunk it in water.

WEIGHT
Is it heavy? *Compare its weight with others.*

TEMPERATURE
Will it change when hot or cold? *Leave it out in the sun and in the freezer.*

STEP 2 **Investigate the Materials**

Test the properties of the materials and write down your observations in the chart.

	Durable	Hard	Elastic	Waterproof	Weight	Temperature	Your Choice!
Vulcanized Rubber							
Wood							
Soft Rubber							
Sugar							
Paper							
Plastic							
Your Choice!							

STEP 3 **Add a Material and a Material Property**

Great job! Now, it's your turn to add a new material and property to test. Use the blank spaces on the chart to experiment with your choices.

REFLECTION

What would happen if we played hockey with the materials from your investigation? How would it affect:

Stickhandling *(**HINT:** Do the activity from page 5 with objects made from different materials.)*

Passing *(**HINT:** Do the activity from page 11 with objects made from different materials.)*

Shooting *(**HINT:** How will these different materials affect speed?)*

Based on your investigation, which materials would make the best hockey puck?

THE PUCK STOPS HERE

The Ducks face a resisting force every time they take the ice. Opponents play defense throughout the game to keep the Ducks from scoring at will. For objects, **friction** is a resisting force as well. It occurs when two objects are in contact with each other. Sometimes, the push back from friction can be helpful. It can keep car tires from slipping on a wet road and allows us to grip a smartphone as we flick angry birds at their targets. Most of the time, friction isn't welcome, especially when you need objects to move with speed. Friction affects us all in different ways so you'll need to know how it works when building your puck.

Texture and pressure are two things that affect the amount of friction between two objects. **Texture** is the feel of a surface. It can be rough, smooth, hairy, bumpy, and even sticky. How does texture change friction? It's time to test the texture of different surfaces to find out!

COACHES CHALLENGE

Measure the friction from different surfaces.

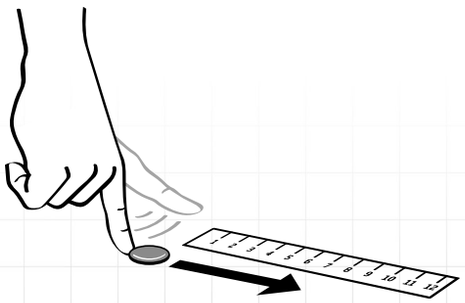
MATERIALS

1. **Any small flat object**
2. **Smooth surface** *(A table top)*
3. **Rough surface** *(Carpet)*
4. **A one-foot ruler**

STEP 1 Set the ruler on the smooth surface like the diagram to the right.

STEP 2 Place your object at the start of the ruler and with your finger, flick the object away from you. Record your distance in the chart and circle the number that best describes the friction you saw. (0 – no friction; 10 – lots of friction)

STEP 3 Now, repeat steps 1 and 2 on the rough surface. Be sure to flick the object with the same force!



Trial	Surface	Distance	Friction
Smooth			0 1 2 3 4 5 6 7 8 9 10
Rough			0 1 2 3 4 5 6 7 8 9 10

Questions:

1. According to your results, which surface had more friction force?

_____

2. What does this tell you about how texture and friction works?

_____

_____

_____

Pressure is not just the feeling you get from taking a test. It's also what you get when you push two objects together. You can change friction by changing pressure. We've got a simple activity on the next page to show you how this works!

COACHES CHALLENGE

Pay attention to friction each time you add pressure or weight to the objects.

MATERIALS

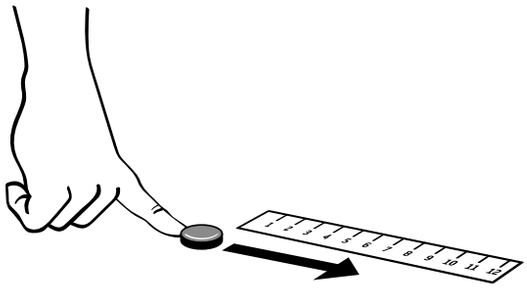
1. **Three identical flat objects** *(books, coins, building blocks, etc.)*
2. **Any surface**
3. **A one-foot ruler**

STEP 1 Set the ruler on your surface like the diagram to the right.

STEP 2 Place your item near the start of the ruler. Push the object with your finger and stop when you reach the end of the ruler. Was there any push back? Use the chart below to record your observations.

STEP 3 Bring the item back to the start of the ruler and stack the second object on top of it. Repeat step 2.

STEP 4 Bring the stacked objects back to the start of the ruler and add the third object. Repeat step 2.



Objects	Friction
1	0 1 2 3 4 5 6 7 8 9 10
2	0 1 2 3 4 5 6 7 8 9 10
3	0 1 2 3 4 5 6 7 8 9 10

1. What happened to the friction force when you stacked more objects on top of each other?

_____

_____

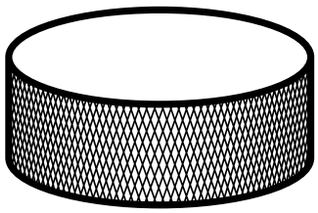
2. What does this tell you about how weight and friction works?

_____

_____

REFLECTION

Pucks are 6 ounces in weight and made with different textures. The top and bottom are smooth while it's knurling, the side with a diamond-shaped pattern, is rough. What would happen if hockey was played with a puck made of different textures and weights? Predict how it would affect **stickhandling**, **passing**, and **shooting**.



Stickhandling *(**HINT:** Complete the **Coaches Challenge** from page 5 with different textures and weights.)*

Textures _____

Weights _____

Passing *(**HINT:** Complete the **Coaches Challenge** from page 11 with different textures and weights.)*

Textures _____

Weights _____

Shooting *(**HINT:** How will these textures and weights affect speed?)*

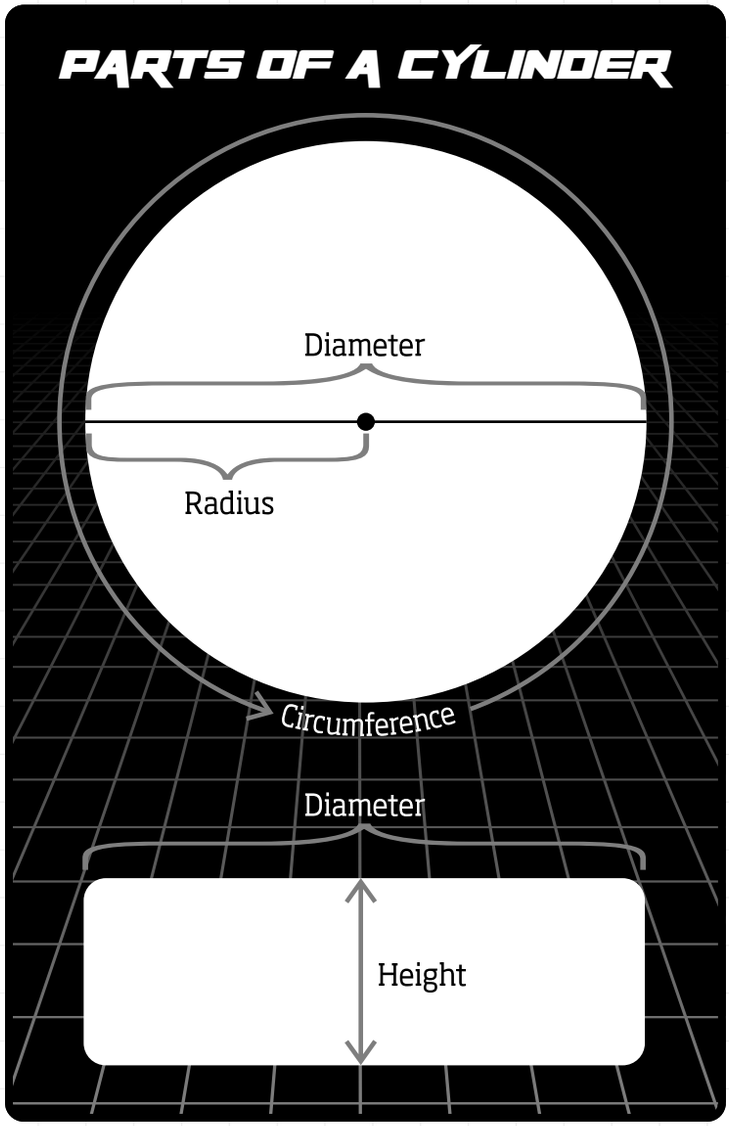
Textures _____

Weights _____

TURN UP THE VOLUME

Size is an important property to think about when designing things. An object's size has to be "just right" because, if it's not, there's a good chance it won't work correctly. There's no historical evidence that a puck's size was designed with stickhandling, passing, or shooting in mind. It's up to you to think about it. What if the puck were tall like a soup can or flat like a pancake? Volume is the tool you can use to make objects larger or smaller.

Volume is the amount of space an object takes up. Whether it's a mountain range or thin sheet of paper, **volume can determine an object's actual size**. To find it, match the object with its closest 3D shape and then use it's formula. Let's find the volume of an NHL puck.

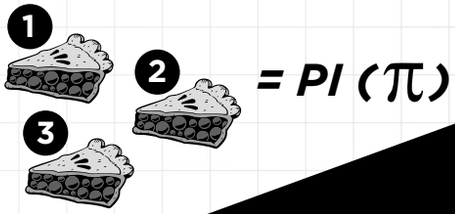


COACHES CHALLENGE

Measure the parts of the official puck (to the right) using a ruler and calculate its volume by using the formula for a cylinder.

Radius _____ inches **Diameter** _____ inches **Height** _____ inches

pi (π) x radius x radius x height = volume of a cylinder



= PI (π)

_____ x _____ x _____ x _____ = ***volume***

VOLUME:

WHAT'S PI (π)?

Pi is represented by the numerical value of 3.14. It is best known by its symbol π. It's okay to give π the value of 3 when calculating volume.

TURN UP THE VOLUME

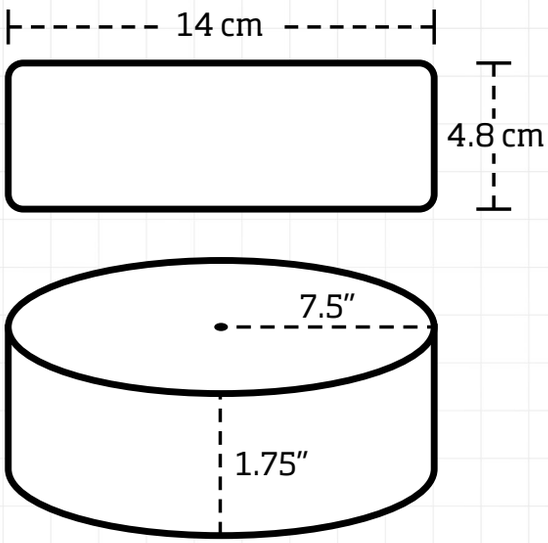
DID YOU KNOW?

Athletes who are visually impaired or legally blind play hockey too! I know what you're thinking. How!? Blind Hockey is the same fast-paced sport as standard hockey with a few minor differences. The most significant difference is the puck! Blind Hockey uses a puck that makes noise and is larger and slower than a traditional hockey puck. Players react off of sound instead of sight.

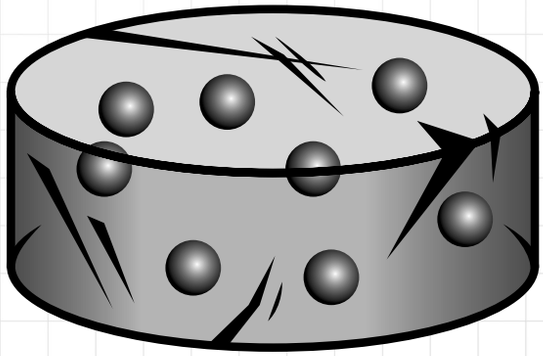
BLIND HOCKEY

COACHES CHALLENGE

Find the volume of a Blind Hockey puck:

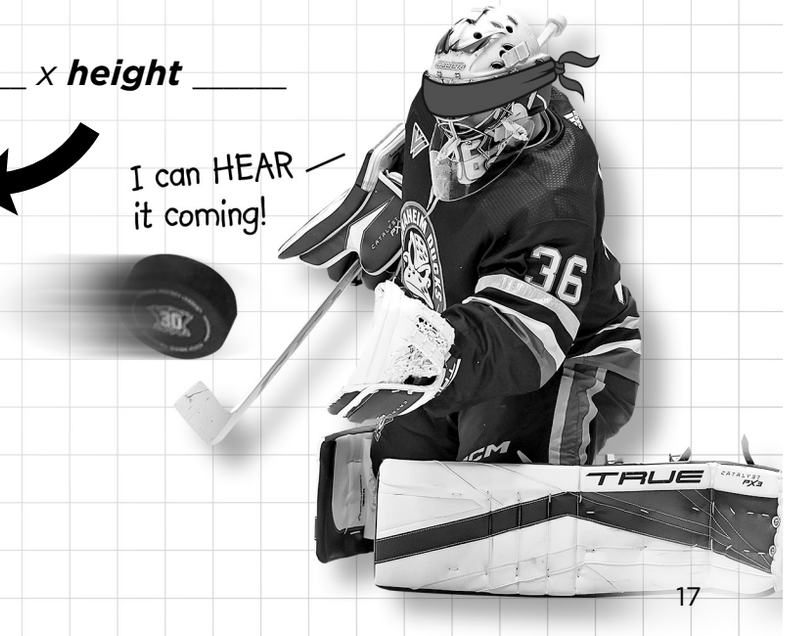


Blind Hockey pucks are made of hollow steel and contain 8 metal balls on the inside. They are made by welding together a steel band to two circular disks with the 8 metal balls placed inside before welding shut. A Blind Hockey puck generally lasts for only one game. The steel isn't as durable as the vulcanized rubber of a standard puck. It becomes dented when hitting the goal post, skates, sticks or boards.



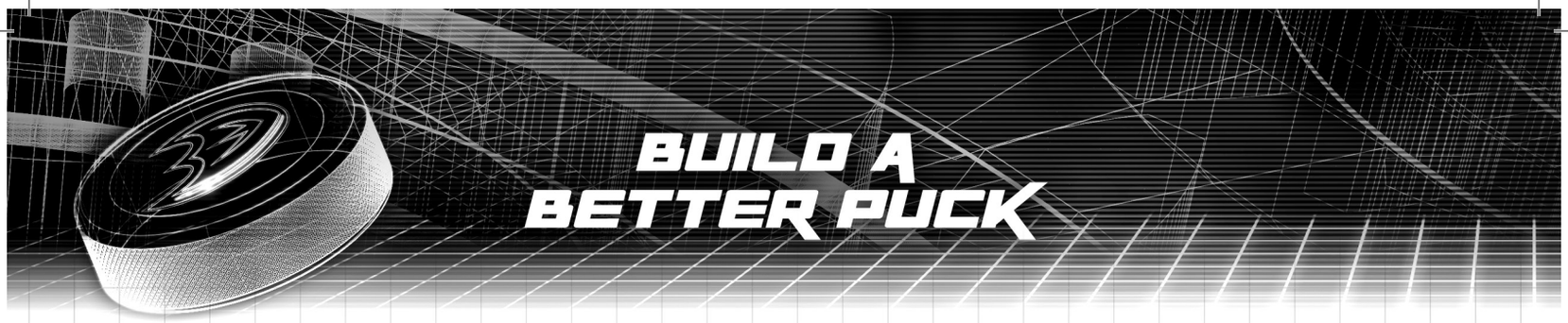
pi (π)*_____ *x* ***radius _____ *x* ***radius*** _____ *x* ***height*** _____

= VOLUME:



Is the volume of the Blind Hockey puck ***less than (<)***, ***greater than (>)***, or ***equal to (=)*** a standard puck?

Blind Hockey puck _____ Standard puck



BUILD A BETTER PUCK

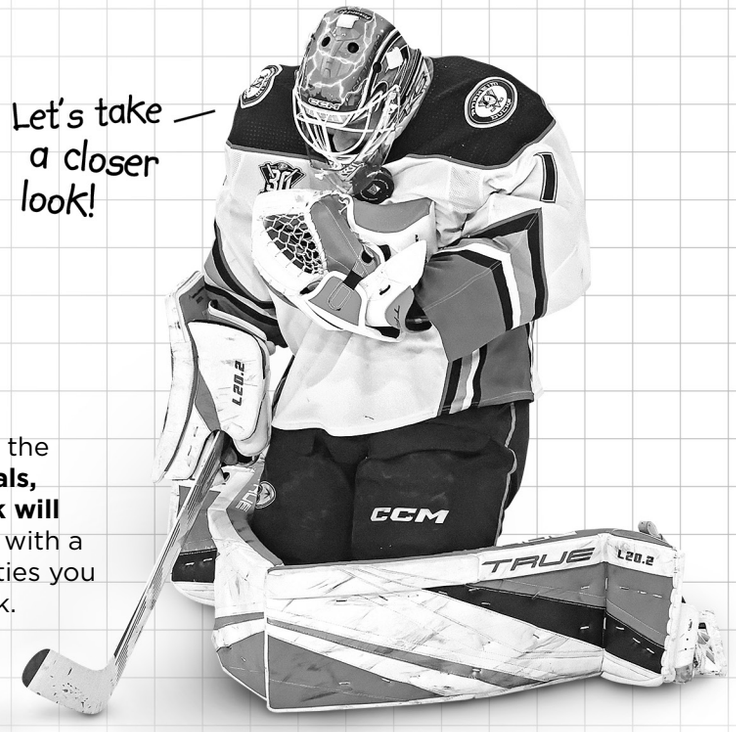
It's time to build a better puck! You're prepared to take on this challenge because you completed all the activities in the workbook. You learned about the puck's history, how it moves, and even put many shapes, materials, weights, textures, and sizes to the test. **You. Are. Ready!**

Let's review where you're at in the design process.
Go to page 5 to review this helpful guide.

STEP 1 **Ask a question** ☑

STEP 2 **Gather Information** ☑

STEP 3 **Brainstorm**
Using the information you gathered from the workbook lessons, **which shapes, materials, weights, textures, and sizes do you think will improve the puck?** Work on your own or with a group and list all the good and bad qualities you found from the activities in this workbook. Go back and look at the notes in your journal to help you with this task.



	Good Qualities	Bad Qualities
Shape		
Material		
Weight		
Texture		
Size		

BUILD A BETTER PUCK

STEP 4 **Plan**

Sketch out some cool puck design ideas in your journal. If you're working with others, take the best ideas and design something everyone can agree upon. Plus, you'll need to figure out how you're going to build it. What materials are you going to use to make this creation come to life? Once you're ready, sketch out a detailed version of your design on graph paper.

No graph paper? Scan the QR code and print out all the sheets you need!

STEP 5 **Build, Test, & Re-design**

Build It! It's time to build it! Use paper maché, modeling clay, or combine items found around the house with tape or glue. If you can't find any of these items, that's okay, just work with something that's similar and easy to use.

Test It! Test It! Put your puck through a rigorous test and record observations in your journal. Use the activities from the workbook to help you test your puck's size, shape, and texture. How will your design affect stickhandling, passing, and shooting?

Re-design It! Things don't always work on the first try. Take what you learned from testing your puck and use this new information to re-design your puck.

STEP 6 **Share It!**

Share your puck with the world through a report, presentation, or technology tools such as a slideshow or video.

Not sure what to share? Here are some ideas!

- What was your plan to design and test your puck?
- How is your puck different from an NHL hockey puck?
- How did you get the ideas to design your puck?
- What were the pros and cons about your puck design?
- What challenges did you face?
- How would you change your design if you could build another puck?

CONGRATULATIONS, YOU DID IT!

YOU BUILT A BETTER PUCK!

COACHES CHALLENGE

Can't Find Anything to Use? Make Your Own Play Clay!

Made with three simple ingredients, this Play Clay provides virtually unlimited creative possibilities for making objects like your puck. And best of all, the ingredients are right in your kitchen.

MATERIALS

1. **Corn Starch**
2. **Cold Water**
3. **Food Coloring** *(optional)*
4. **Sauce Pan**
5. **Measuring Cup**
6. **Plate**
7. **Paper Towel**

STEP 1 Combine ingredients into saucepan.

- 2 cups baking soda
- 1 cup corn starch
- 1 ¼ cups cold water
- Food coloring (for color)

STEP 2 Stir until mixed.

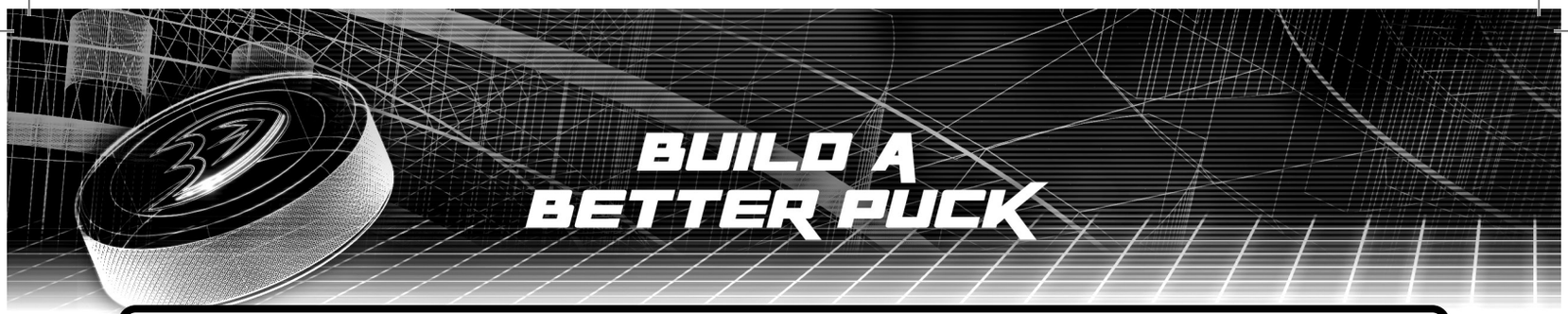
STEP 3 Cook over medium heat. Keep stirring until you get it to look and feel like mashed potatoes. It should take 10-15 minutes.

STEP 4 Remove mixture to a plate and cover with a damp cloth.

STEP 5 When cool to the touch, that means it's ready.

Play Clay can be stored in your fridge for up to one week if you want to reuse it. You can also dry the finished product overnight. Use with adult supervision.

Make sure you get permission from an adult before doing this activity!



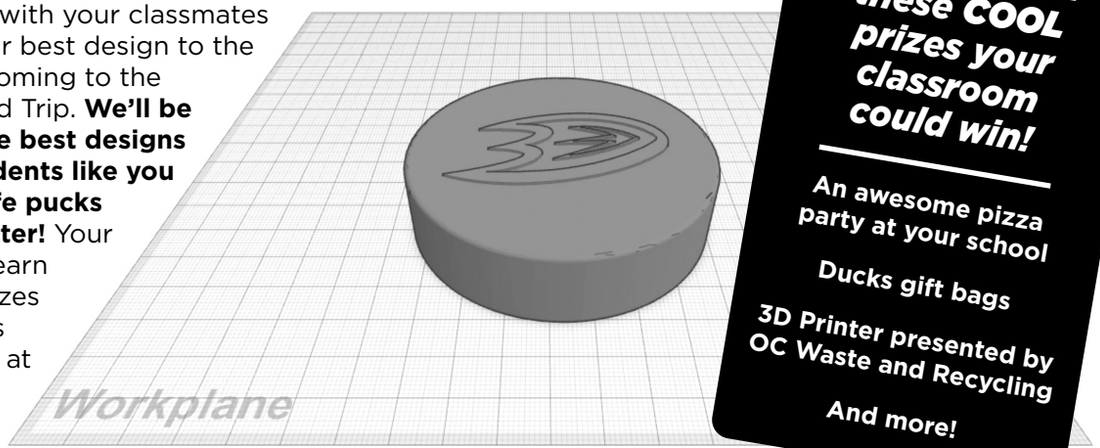
ARE YOU READY FOR THE "BUILD A BETTER PUCK" CHALLENGE?

Presented by

ORANGE COUNTY DEPARTMENT OF EDUCATION · ORANGE COAST COLLEGE · COUNTY OF ORANGE CALIFORNIA · OC Waste&Recycling — COUNTY OF ORANGE — Our Community. Our Commitment.

Design a 3D computer model of your puck.

Work together with your classmates and submit your best design to the Ducks before coming to the First Flight Field Trip. **We'll be choosing all the best designs created by students like you to make real-life pucks using a 3D printer!** Your classroom will earn some sweet prizes if your design is featured on-ice at the First Flight Field Trip.



Check out all these COOL prizes your classroom could win!

- An awesome pizza party at your school
- Ducks gift bags
- 3D Printer presented by OC Waste and Recycling
- And more!

Here's how to enter the "Build a Better Puck Challenge"

1. Go to tinkercad.com and create a user account. It's free to use this program, but you'll need to get your teacher or parent's approval before getting started.

2. "Tinker" around with the fun games and activities once you've logged into your account. They will teach you how to bring your design to life.

3. Work with your classmates to brainstorm ideas and come up with a puck design.

4. Place, adjust, and combine shapes to make a 3D model of the puck.

5. Share your puck designs by saving it as a **.STL** file in Tinkercad. Email it to **score@anaheimducks.com** for a chance to win!

Need more help? Scan the QR code to learn how to convert a logo into 3D to add to your design!

BETTER PUCK CHALLENGE

Have fun and get creative!

HOCKEY HOMEWORK
INSIDE HONDA CENTER

WHAT DO YOU NOTICE?

While you're at Honda Center, spend some time looking at the puck. What do you notice? Use the following questions to help you take notes.

Describe the ice rink at Honda Center. What does the ice surface look like and how is the puck moving? What do you see all around you?

_____

_____

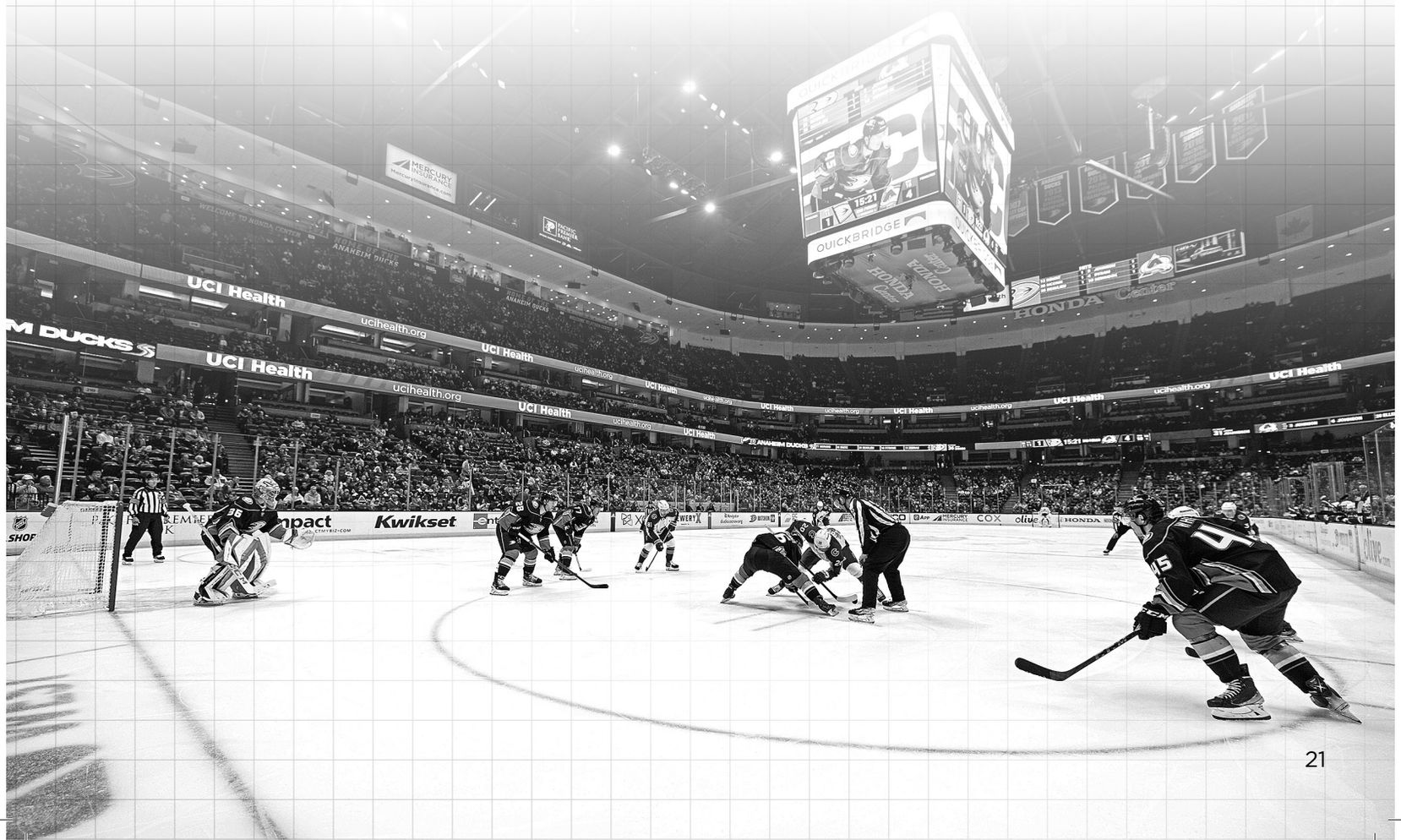
_____

How many pucks are there on the ice? Why do you think there are that many pucks on the ice at one time?

_____

_____

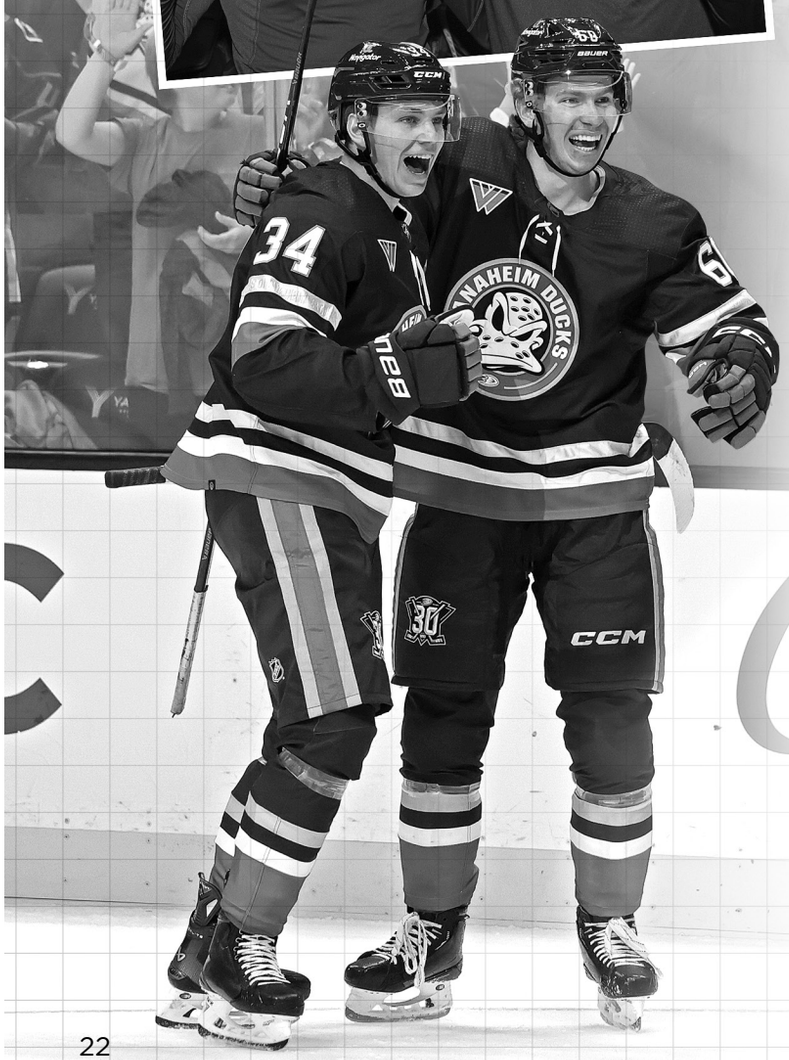
_____



HOCKEY HOMEWORK
INSIDE HONDA CENTER

DID YOU KNOW?

When an NHL player scores their first goal or point, a teammate grabs the puck out of the net to keep. After the game that same puck is presented to them to celebrate and remember their achievement!



Look closely at the Ducks players as they shoot, pass, and stickhandle the puck. Describe what you see.

What does the goaltender wear to play hockey? Write about if you think getting hit by the puck would hurt as a goaltender.

What questions would you ask the Anaheim Ducks players?

HOCKEY HOMEWORK
INSIDE HONDA CENTER

I SPY - FROM MY SEAT!

How many banners hang from the rafters?_____

How many Ducks logos can you find?_____

What shapes do you see in the hockey rink? Name some of the angles of the lines you see. How many circles are in the hockey rink?

_____

_____

_____

From where you're sitting, can you find the two flags in the building? What countries do they represent? Can you guess why those two countries are represented?

Flag 1:_____

Flag 2:_____

Do you see a "Stanley Cup Champions" banner? What year is written on that banner?

_____

Were you born before or after the Anaheim Ducks because Stanley Cup Champions (***Hint:*** *The Ducks won June 6th, 2007*).

_____

Can you come up with your own team **H O C K E Y** team names?

H*awks (example)*_____

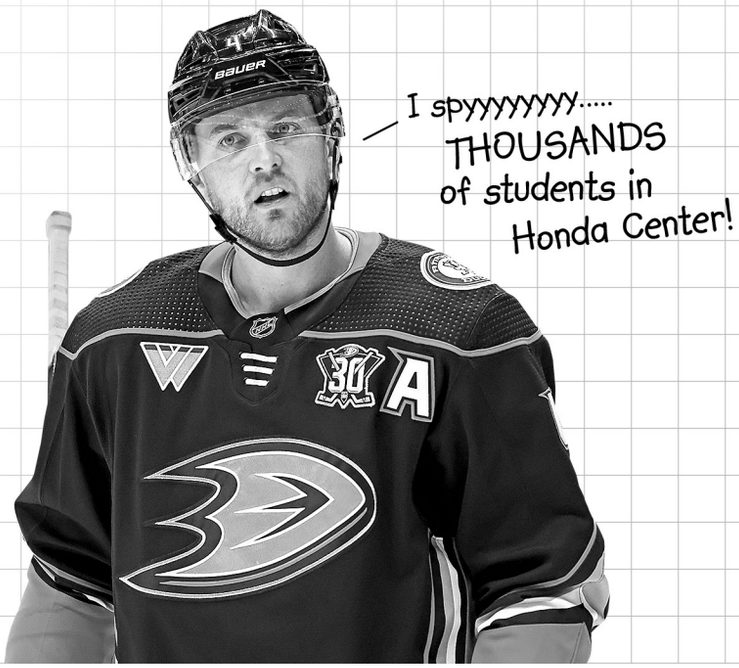
O_____

C_____

K_____

E_____

Y_____



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