RECYCLE for ROVER

A Design Challenge by
NJSBA & NJTEEA

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BACKGROUND INFO:

Like humans, pets get bored too. As a caring pet owner, it's our duty to take care of our furry friends to keep them happy and entertained throughout the day, even when we aren't around!

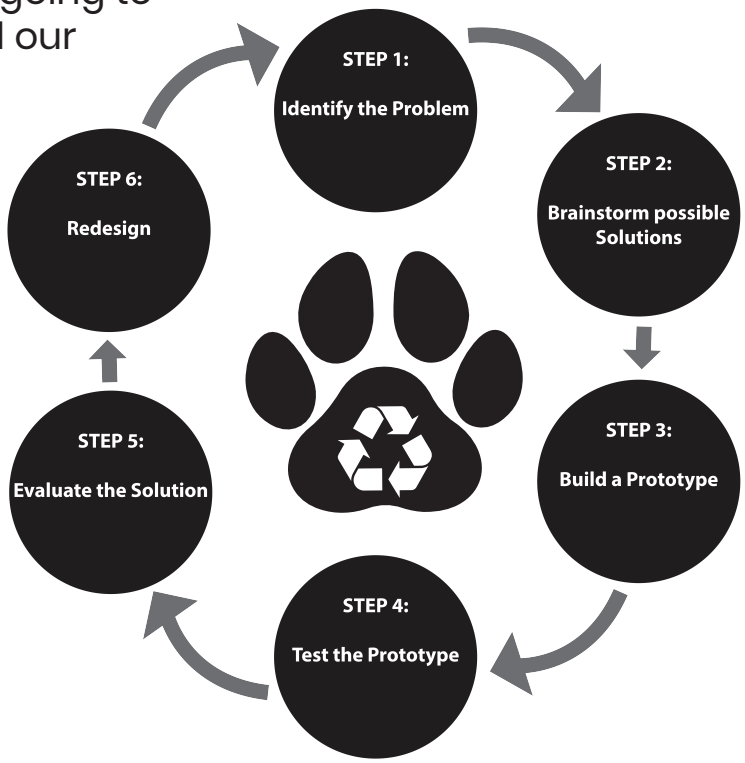
And of course, one of the best ways to do this is by getting our pets new toys! But did you know that there are currently no safety standards in place that require manufactures to test the levels of chemicals present in their products? There are many toy manufactures that take their own precautions to ensure biodegradable and non-toxic materials are used, but there are just as many $4 toys out there that don't.

THE CHALLENGE:

So what do we do? Like engineers, we are going to solve this problem by making toys from materials we know are safe for our furry friend to chew on! As an added challenge, we are going to only use recycled materials around our homes to make our pet toys!

Using an engineering design process, we are going to brainstorm ways to create pet toys, then we are going to construct prototype toys and give them to our quality control team. (our pets of course)

There are tons of different design processes out there, but all of them are created to help engineers solve real-world problems just like this one! This is the process we're going to use for this challenge.



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STEP 1: IDENTIFY THE PROBLEM

We are going to try to solve three problems in the RECYCLE for ROVER challenge, here's what they are:

1. We don't want our pets to be bored so we need to get them toys
2. There are many pet toys for sale that aren't made with safe materials
3. Many household items get thrown away when they can be re-purposed

To attempt to solve these problems, we are going to try to make pet toys from re-purposing items around our home, then spread the word about making safe and recycled pet toys to our local community!

STEP 2: BRAINSTORM POSSIBLE SOLUTIONS:

In this step, we need to start thinking about what type of toys our pets would enjoy. Look at the toys your pet already has, which ones do they like and which ones do they ignore? In the space below, sketch at least THREE different toy ideas.

REMEMBER TO LABEL THE PARTS OF YOUR SKETCH!

STEP 3: BUILD A PROTOTYPE

What is a **PROTOTYPE?** A prototype is like a rough draft, or an early model of a design product or solution. Engineers make prototypes of their ideas before putting them on sale or releasing them to the public!

Its time to bring our ideas to life! We are going to select some recycled materials to construct at least **ONE** of our brainstormed solutions. Consider some of the following items as materials you can use:

- toilet paper roll tubes
- cardboard
- plastic water bottles
- socks
- cut fabric from t-shirts or pants
- old balls (tennis, soccer, etc)

Once you've chosen your materials, start to construct your prototypes. Remember **SAFETY PROCEDURES** when working with tools to build your prototype. Always construct prototypes with an **ADULT** for help!

If you're using **GLUE OR DYES**, make sure it is **NON TOXIC!**

STEP 4: TEST THE PROTOTYPE

Before we recruit our quality control team, check your prototype for any loose threads, sharp edges, or small pieces that can be easily swallowed. Then pass it on to your pet and see what they make of it!

STEP 5: EVALUATE THE SOLUTION

How did the toy perform? Was your pet interested? Did they want to use your prototype more or less than another toy that was bought? How long did the toy last before it was destroyed in testing? Use the space below to record the results from the test.

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STEP 6: REDESIGN

No design is ever perfect, there are always ways to improve a product and that's exactly what we are going to do in this step! In the space below, answer the following questions about your prototype toy.

WHAT WORKED WELL?

WHAT DIDN'T WORK, OR FAILED DURING TESTING?

Now its time to brainstorm an improved design! In the space below, redraw your prototype toy with improvements from what we've learned worked well, and what didn't.

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