Physics in the Sink: Will the Balloon Pop, Or Not

Normally if you put a balloon over a flame, the balloon will pop. But what happens when you put a water balloon over a flame?

**What you Need**
- A balloon filled with air
- A balloon filled with water
- A lit candle
- Help from an adult

**What to Do**
Place the lit candle in the sink, this way if anything should happen, you can easily put out the flame with tap water.
Blow up a balloon and tie it off. Then hold it over a lit candle with a parents help.
What happens to the balloon?
Now fill a balloon with water and tie it off. Be careful or you will end up wet!
Now hold the water balloon over the candle. What happens?

**What’s Going On?**
For something to rip or break there needs to be some weakness in the material. Things break because enough energy is added to the material to rip apart the bonds between molecules or to make a small defect get bigger. When a balloon filled with air is held over a flame, the balloon melts a
little bit. This means there is now a weak point in the balloon. The air inside the balloon pushes really hard on the melted part and makes the weakness get bigger, so the balloon pops.

When the balloon is filled with water, the water absorbs the heat. This stops the balloon from melting. Because there is no weak point, the balloon doesn’t pop.

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