



SCIENCE OF COOKIES



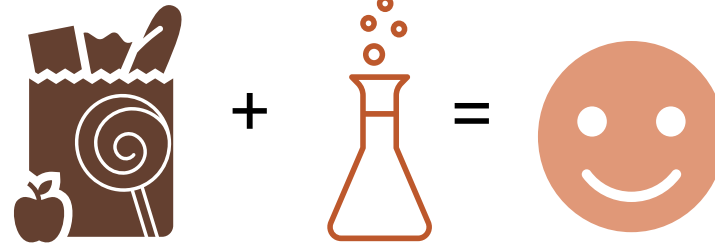
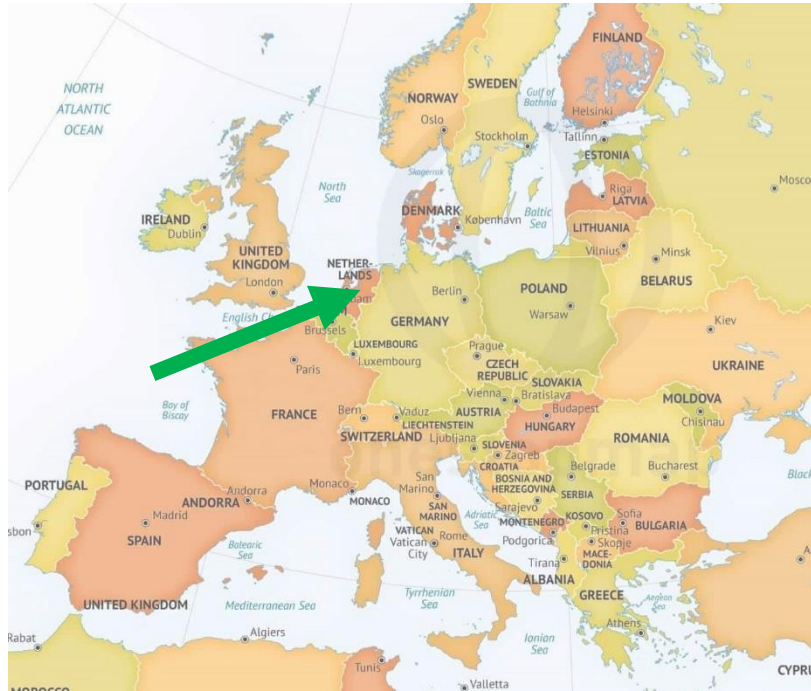
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Hi!



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Today's Goal

“Helping you troubleshoot cookies by knowing how they work”

Understanding vs. Memorizing

No “**perfect**” recipes here!





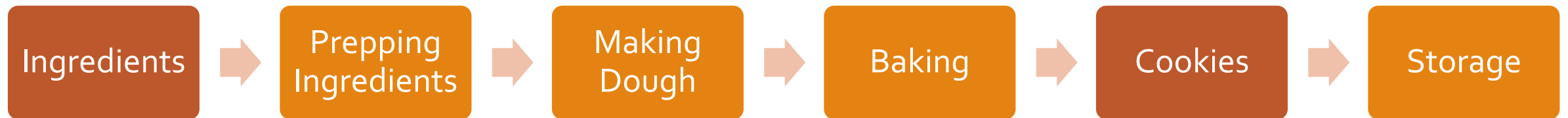


We need a way to properly describe and evaluate all these cookies!





Dissecting Cookies

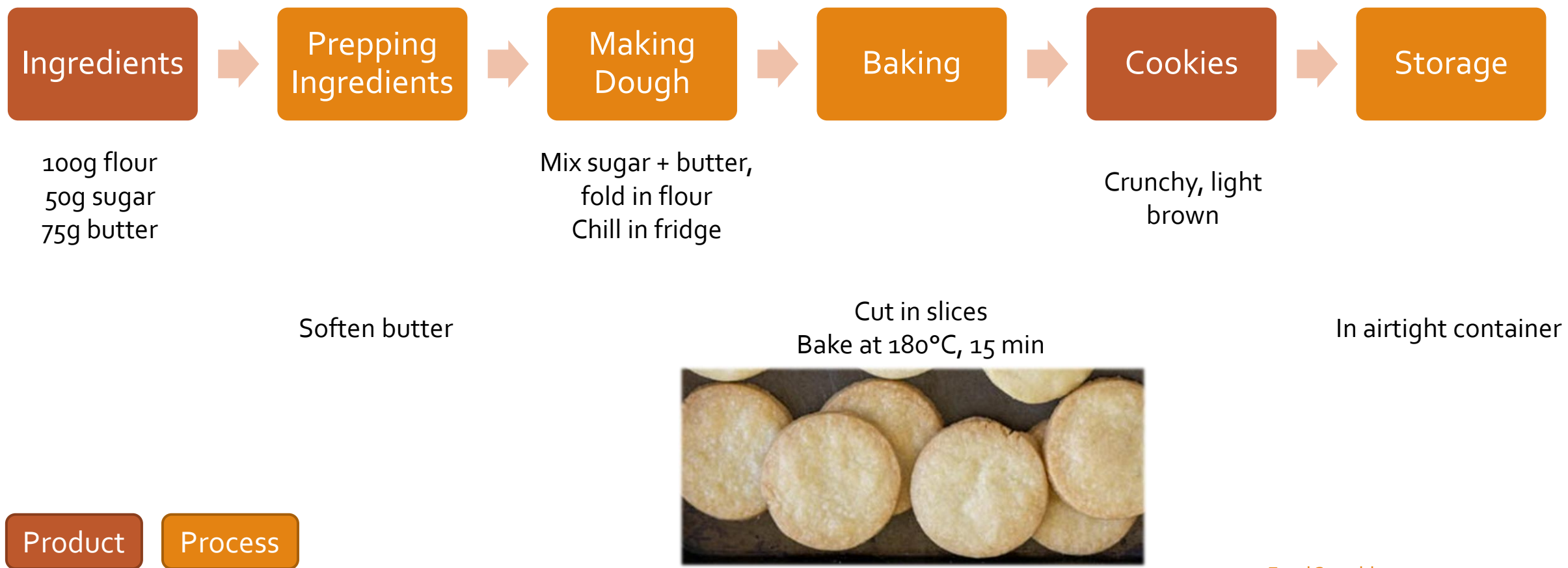


Product

Process

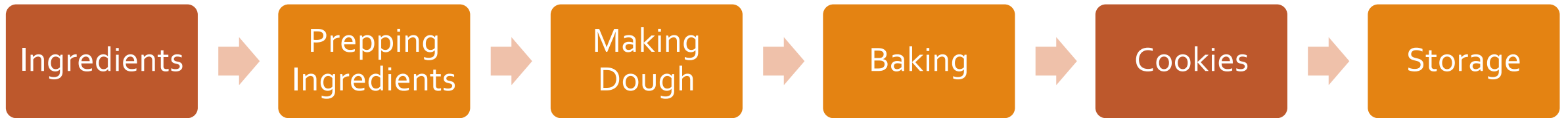


Dissecting Cookies - Shortbread





Dissecting Cookies



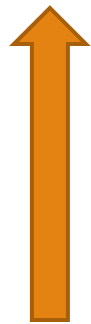
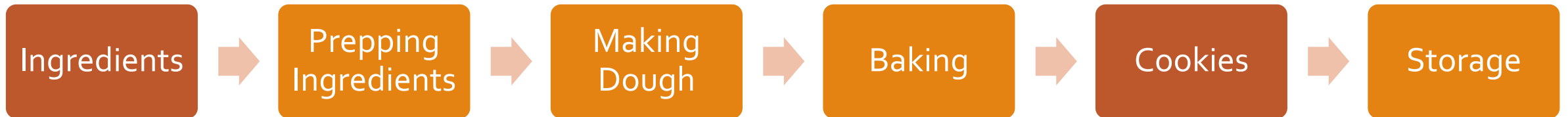
When troubleshooting cookies, consider which step might have caused your problem.

Product

Process



Dissecting Cookies

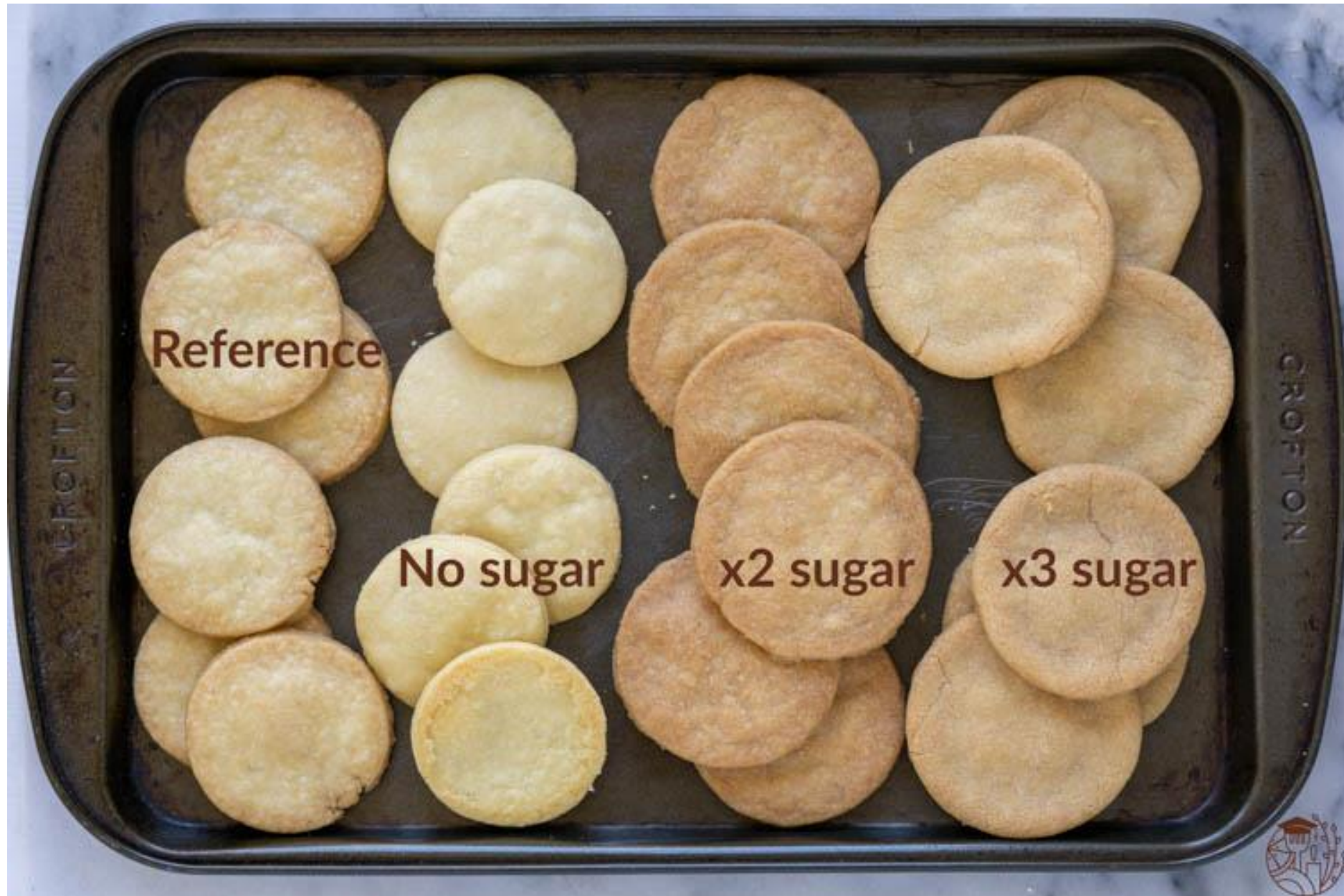


- Which?
- Quantity & ratio
- Type
 - e.g. powdered vs granulated sugar
 - e.g. brown vs white sugar
 - e.g. butter vs oil

Let's have a look at some examples!

Product

Process





Reference

No sugar

High butter

2x sugar

3x sugar

High butter,
Low flour



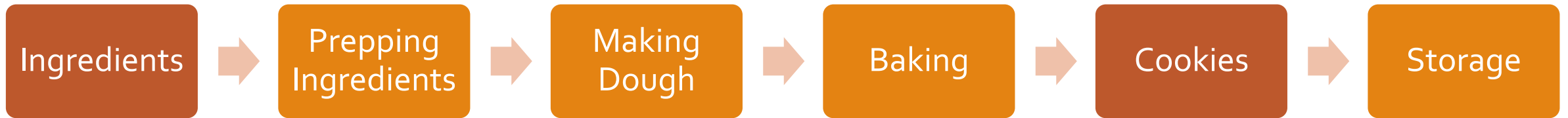
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Dissecting Cookies



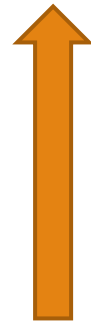
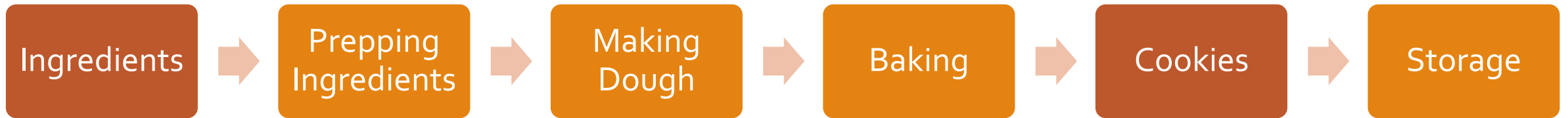
- Temperature
- Processing (e.g. browning butter)
- Soaking

Product

Process



Dissecting Cookies



- Order of addition
- Mixing duration
- Shaping (e.g. cutting, rolling)

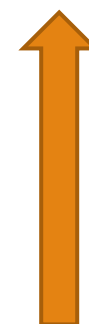
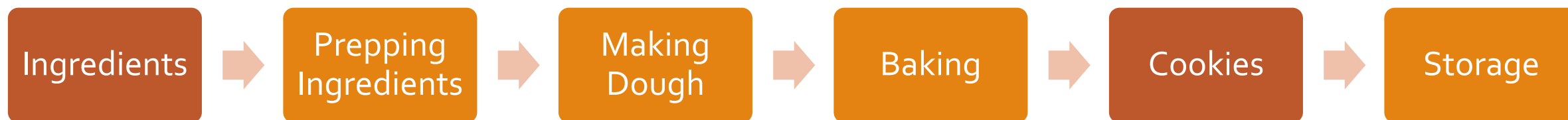
Product

Process





Dissecting Cookies



- Duration
- Temperature of dough
- Size & shape of dough
- Temperature of oven
- Type of tray
- Type of covering on tray (e.g. parchment)
- Method of heating (e.g. oven, deep-frying)
 - Type of oven (e.g. convection)
- Cooling

Product

Process



Fats melt

Dough softens





Baking powder activates

Starch starts to 'cook'





Moisture continues to evaporate





START

END

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Temperature

LOW



HIGH

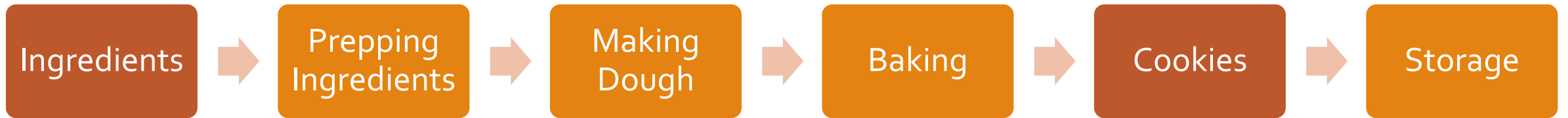




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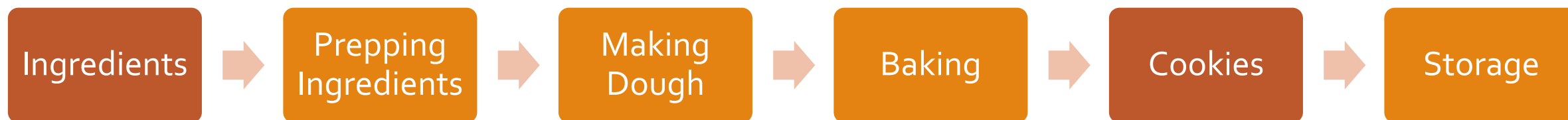
- Crispiness
- Chewiness
- Color
- Size
- Shape
- Thickness

Product

Process



Dissecting Cookies



Do NOT store different types of cookies in the same container



Moisture is a (crispy) cookie's main enemy!



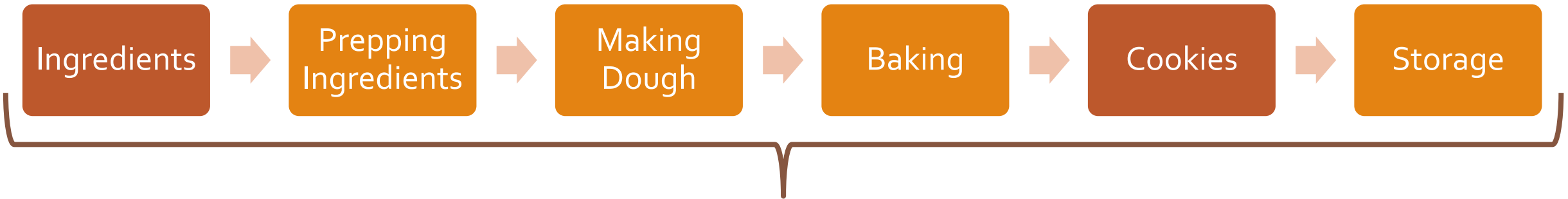
Product

Process

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Keep in mind

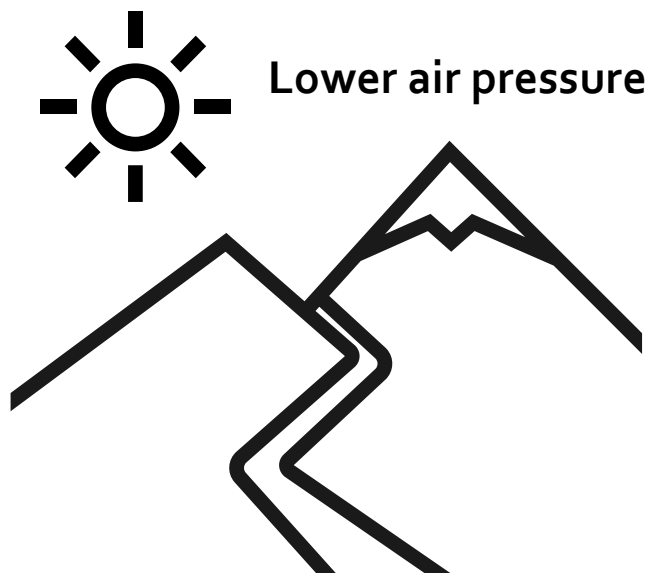
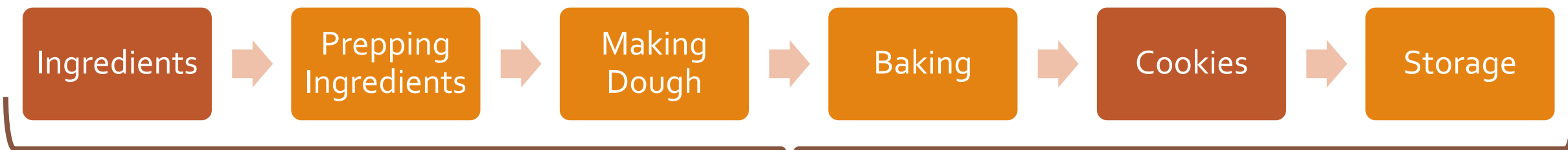


- Weather (humid, hot, cold?)
- Number of cookies
- Temperature inside bakery

Often it's the sum of a lot of small changes that makes the difference.



Question: Altitude Baking (>1000m/3000ft)



Less 'resistance' from air pressure

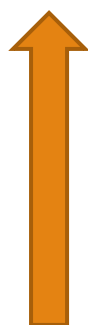
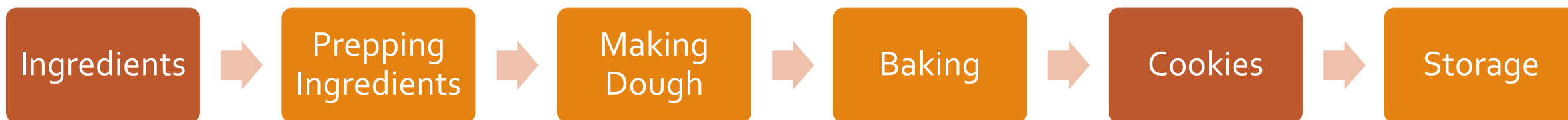
- Expand easier
- Water evaporates more quickly



- Add more water, less leaveners
- Increase oven temperature (to set more quickly)



Question: Flour Type



Impact of wheat flour type

- Larger-% flour → bigger impact
- Whole wheat vs. White
- Bread vs. Cake vs. All purpose
 - Less important than for cakes, breads



Product

Process

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How to experiment with cookies

- Start with a recipe that's close to what you're aiming for.
- Make it, test it.
- Evaluate, determine what cookie is missing
- Change 1 parameter at a time, optimize





Further Learning

We've written about cookies a lot on our website!

- Start with: [Unpeeling the science of cookies](#)
- Read the "LEARN MORE" sections linked to throughout this presentation
- Find [all cookie articles](#)

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