

# Lesson 5: How Are Food Molecules Built Up and Stored?

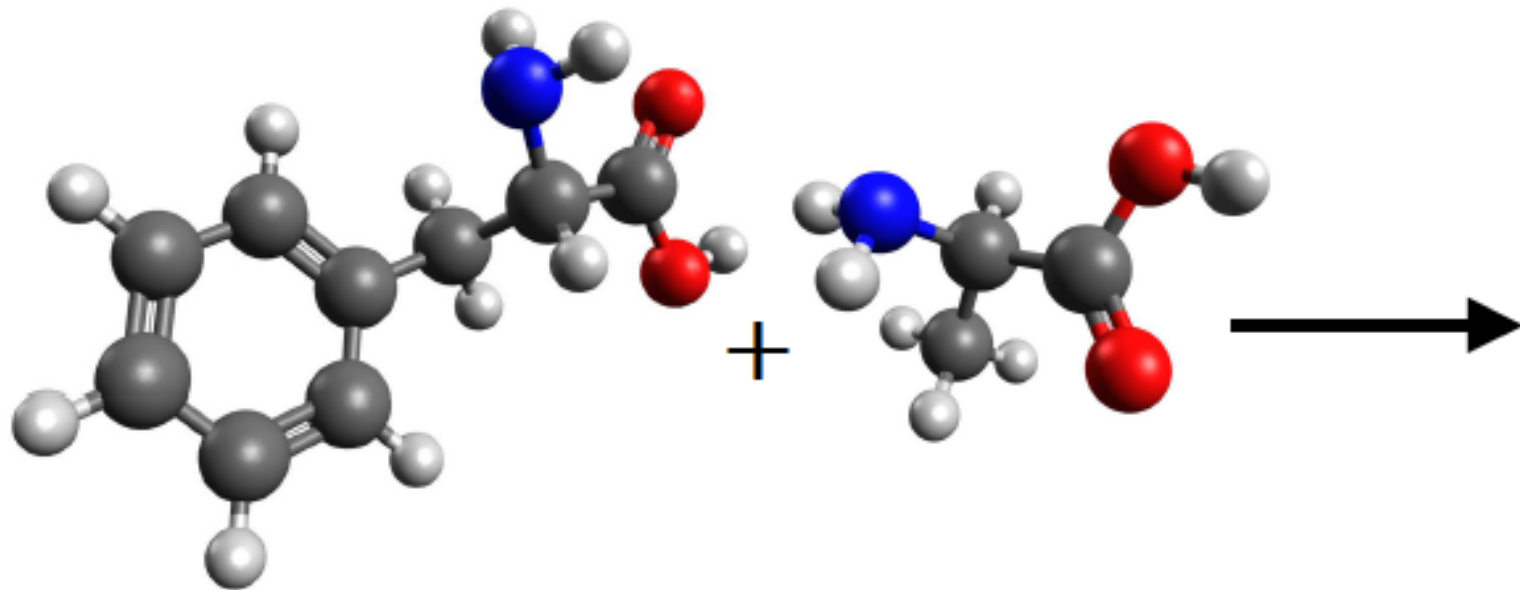
Activity 5.1: Where Do Proteins Go When They are Eaten?

Reading 5.1: What Allows Organisms to Grow?

# What happens to the food you eat?

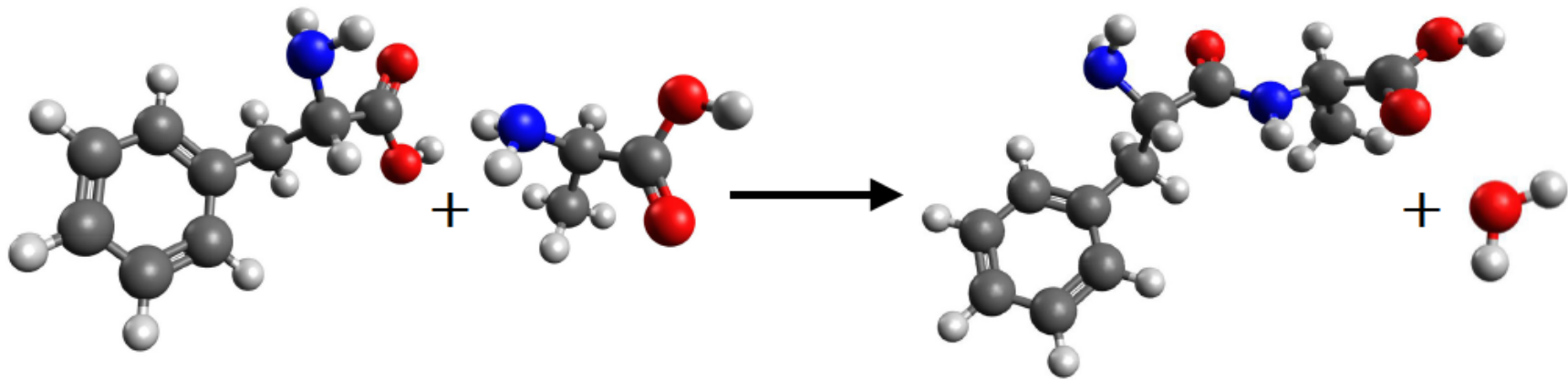


Predict: What will the product molecules look like?



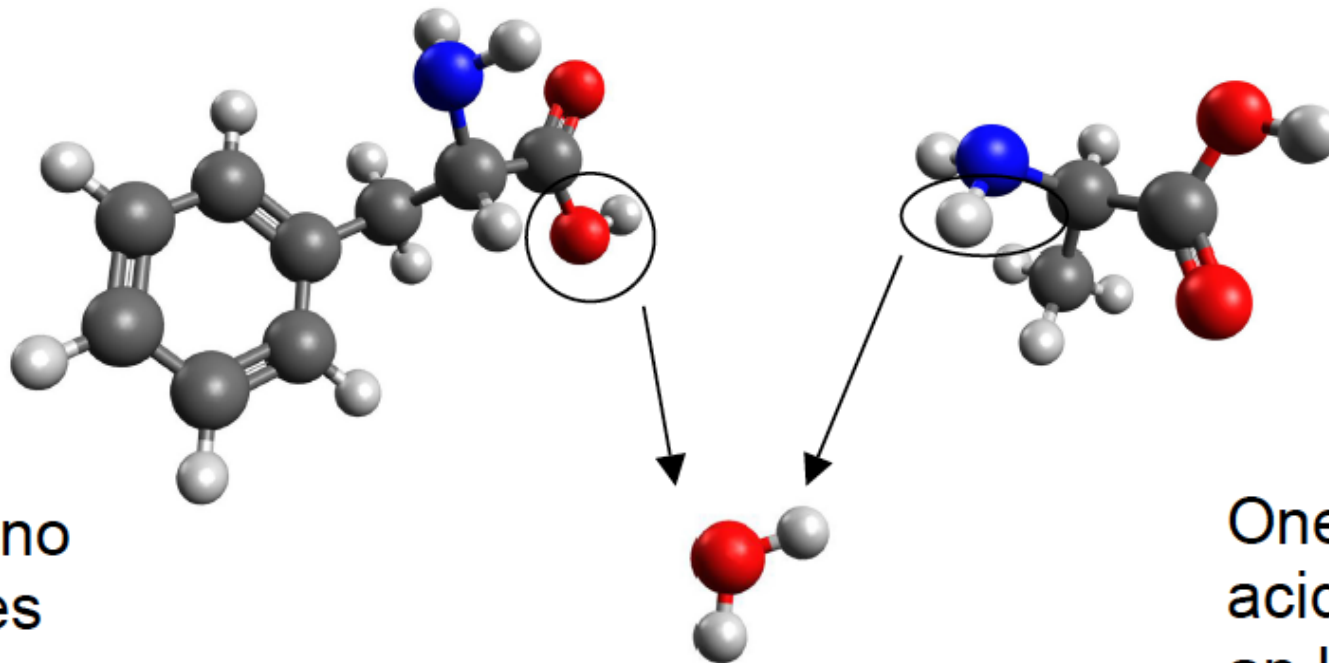
Amino Acid + Amino Acid  $\longrightarrow$

# Evidence of a chemical reaction?



Amino Acid + Amino Acid  $\longrightarrow$  Two Protein Subunits + Water

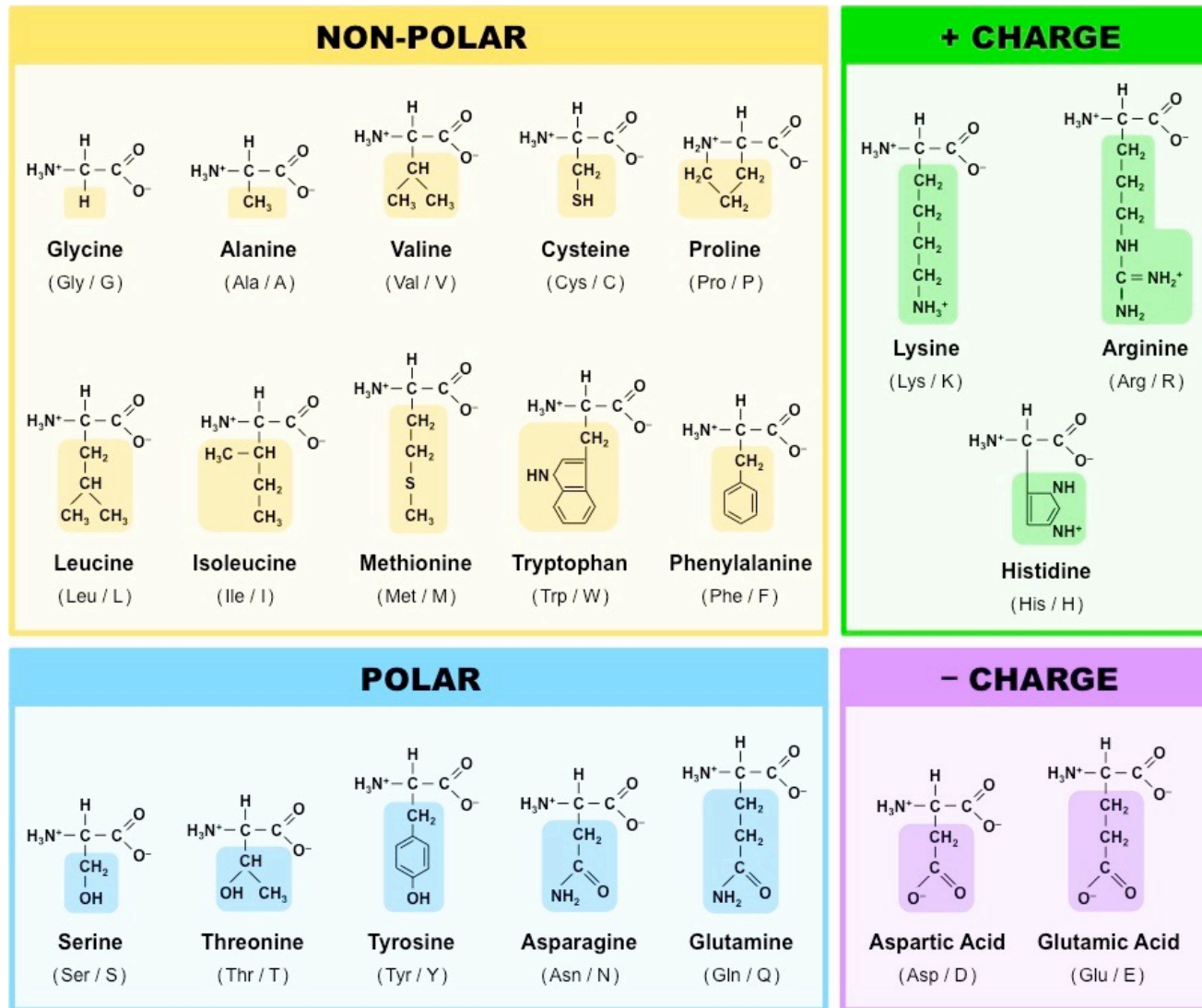
# Where will the new bond be?



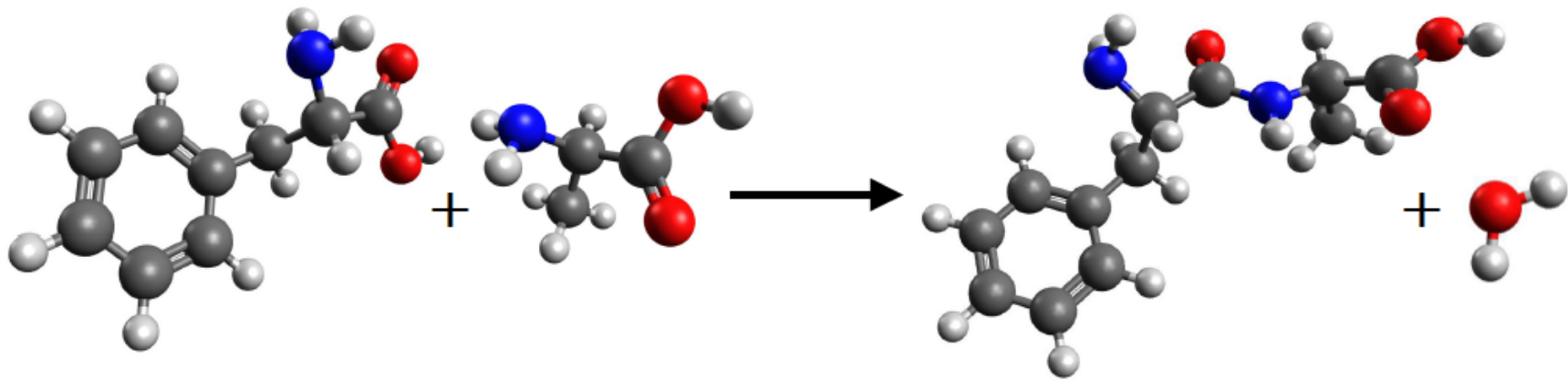
One amino acid loses an OH.

One amino acid loses an H.

# What's different about the "R"



# Narrate in Words! Name of Reaction?



Amino Acid + Amino Acid  $\longrightarrow$  Two Protein Subunits + Water

# Make the reaction!

Synthesize a starch—Dehydration Synthesis

- Reactants?
- Products?
- Name?
- Where might this happen?



# Make the reaction!

Synthesize a protein—Dehydration Synthesis

- Reactants?
- Products?
- Name?
- Where might this happen?

# Make the reaction!

Break apart a starch--Hydrolysis

- Reactants?
- Products?
- Name?
- Where might this happen?

# Make the reaction!

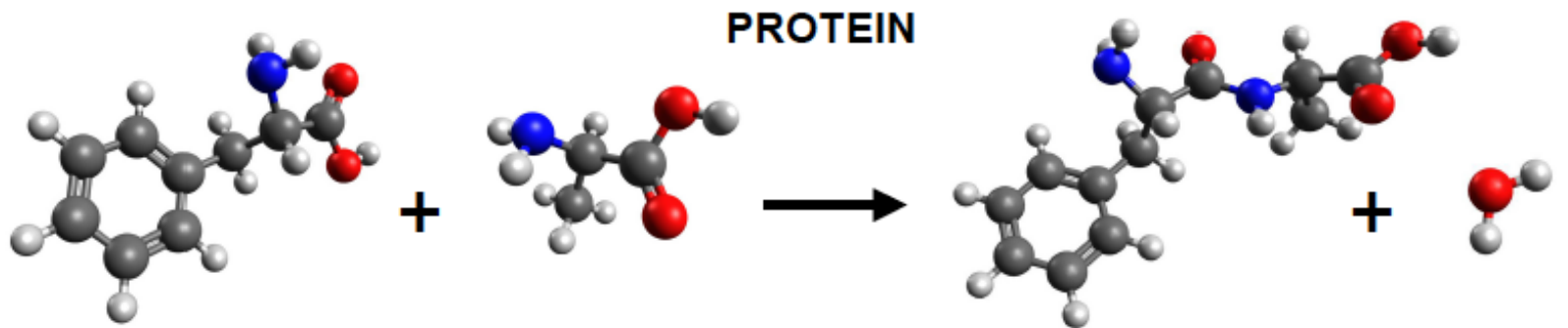
Break apart a protein--Hydrolysis

- Reactants?
- Products?
- Name?
- Where might this happen?

## 5.2 Do Animals and Plants Store Food for Later?

- If your body needs energy and building materials all the time (even when you're sleeping), why do you not need to eat all the time?

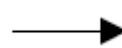
# Compare? Contrast?



Amino acid

+

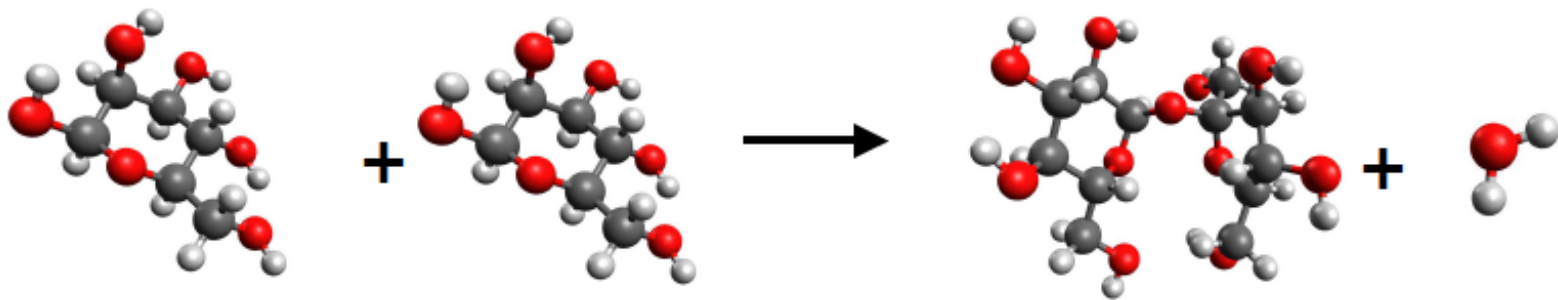
Amino acid



Molecule made from two Protein Subunits

+

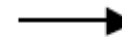
Water



Carbohydrate Subunit

+

Carbohydrate Subunit



Molecule made from two Carbohydrate Subunits

+

Water

# Fate of Fat

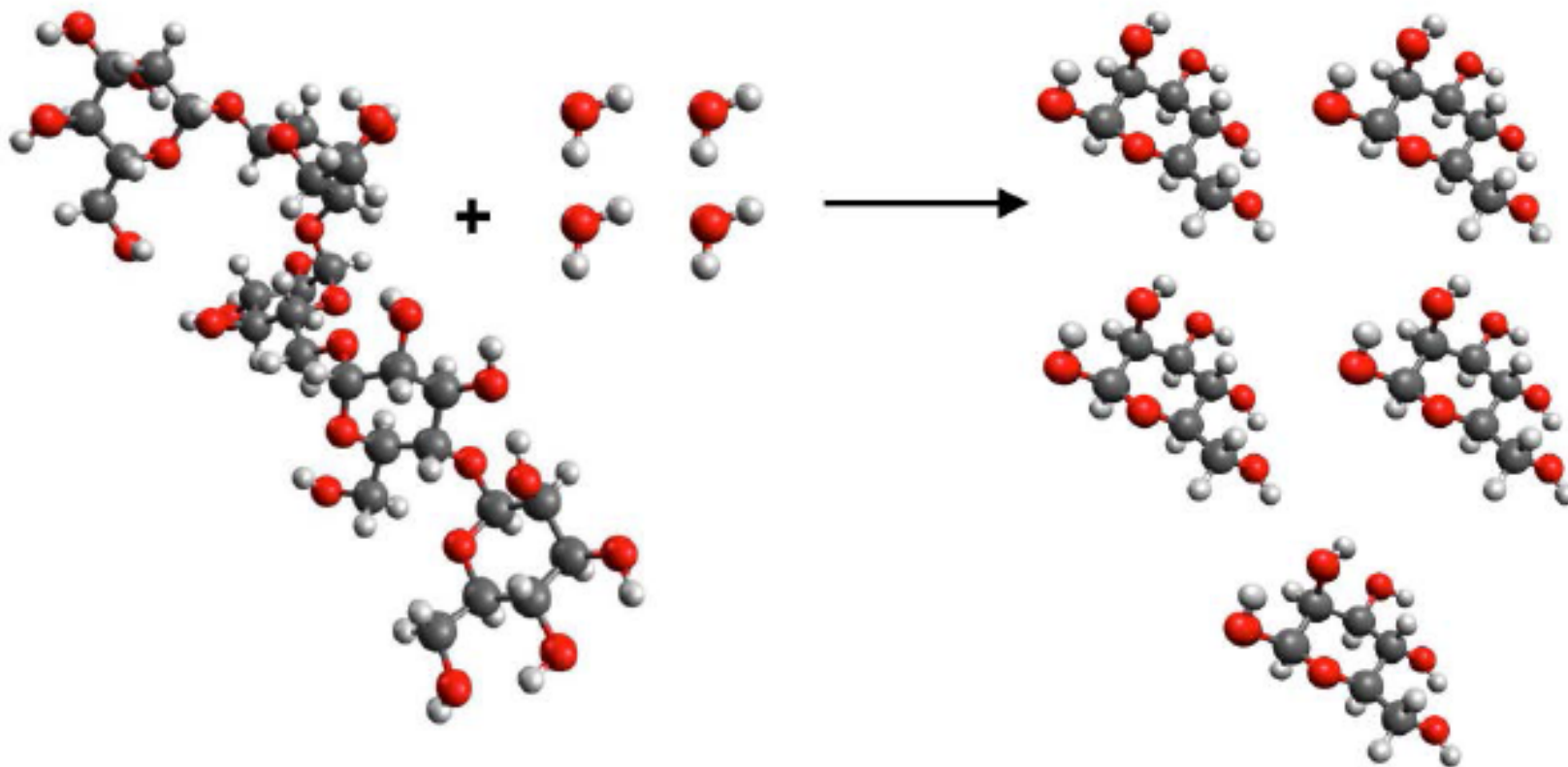
- Video

<https://www.hhmi.org/biointeractive/fate-fat>

- Chemical Reactions related to fat slide show

- [http://media.hhmi.org/biointeractive/click/obesity\\_processing\\_fat/04.html](http://media.hhmi.org/biointeractive/click/obesity_processing_fat/04.html)

# Reaction?



# Scientific Principle #5

- How do organisms build new molecules?
- What happens to the molecules?