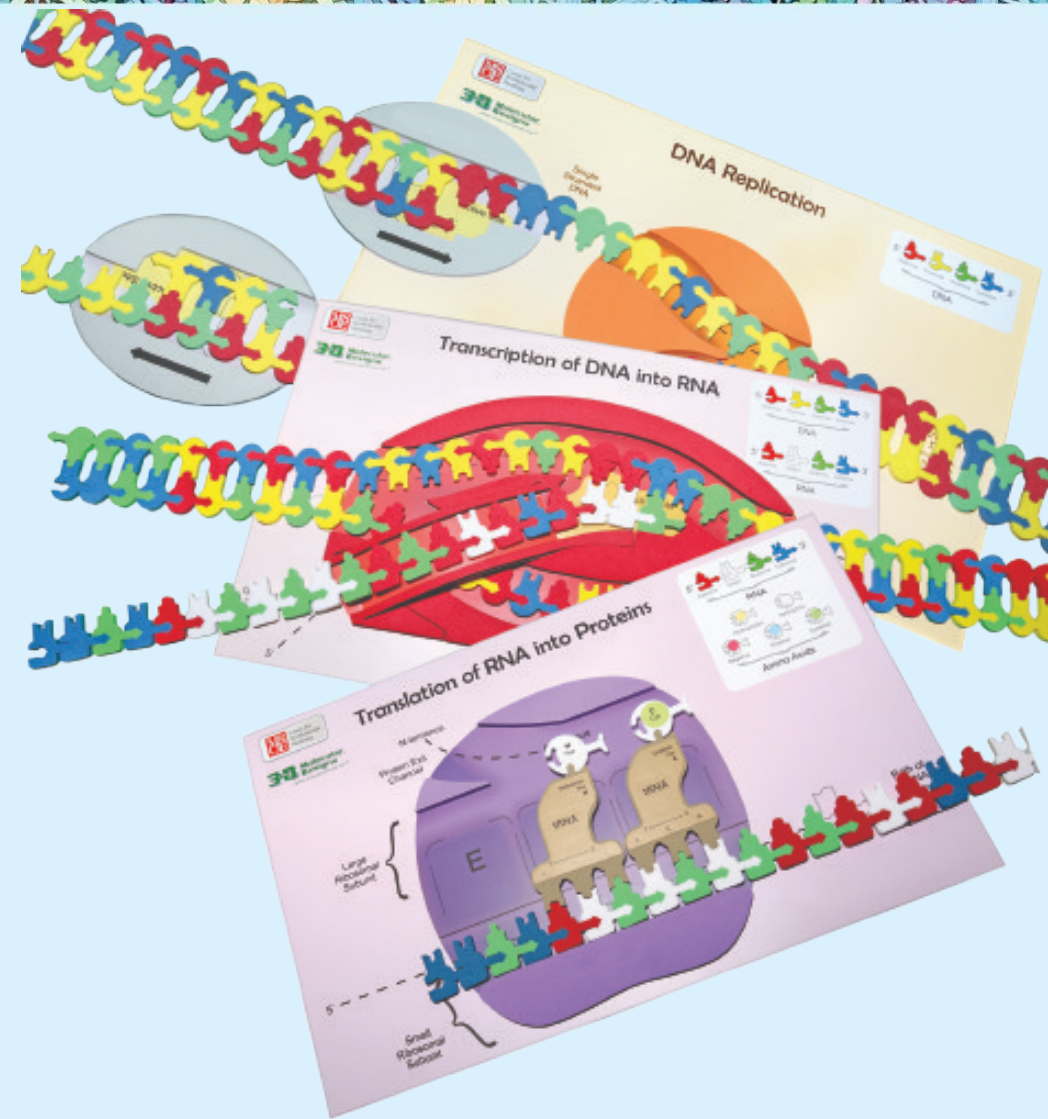




Flowing through the central dogma

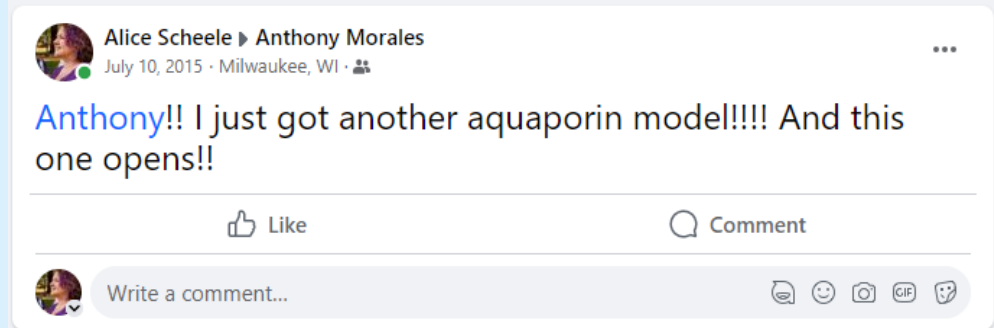
Alice Scheele
3DMD Model Teacher
Biology Teacher
Patrick Henry High School
Ashland, VA





Who am I?

- Biology teacher and Advanced Studies Coordinator in Hanover County, VA
- 3DMD Model teacher
- AP Reader & consultant



Learning Intentions/ Session Goals

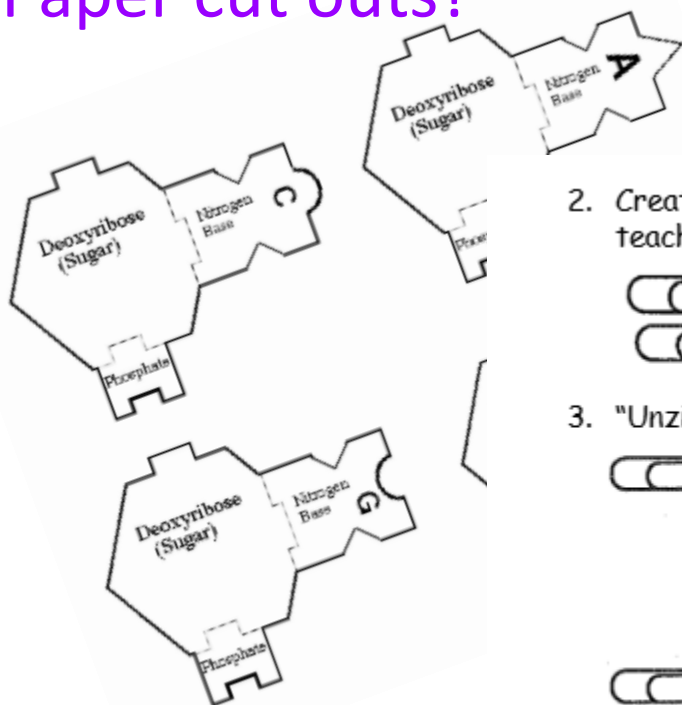
- I am learning about the mechanisms involved with copying DNA.
- I am learning about the mechanisms by which genetic information flows from DNA to RNA to protein.

Success Criteria

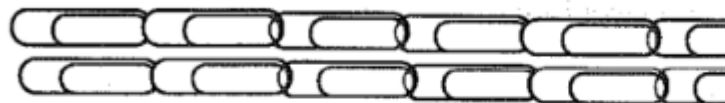
- ☐ I can model how the leading and lagging strands occur in DNA replication.
- ☐ I can model the creation of an mRNA transcript.
- ☐ I can model the creation of a polypeptide chain.

What tools do you use to teach central dogma?

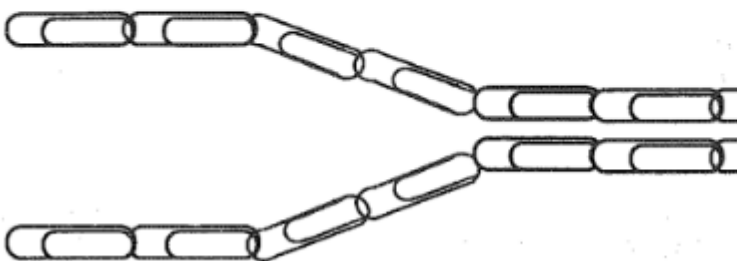
Paper cut outs?



2. Create two chains of paper-clip DNA based on the list teacher approve before you move to the next step.



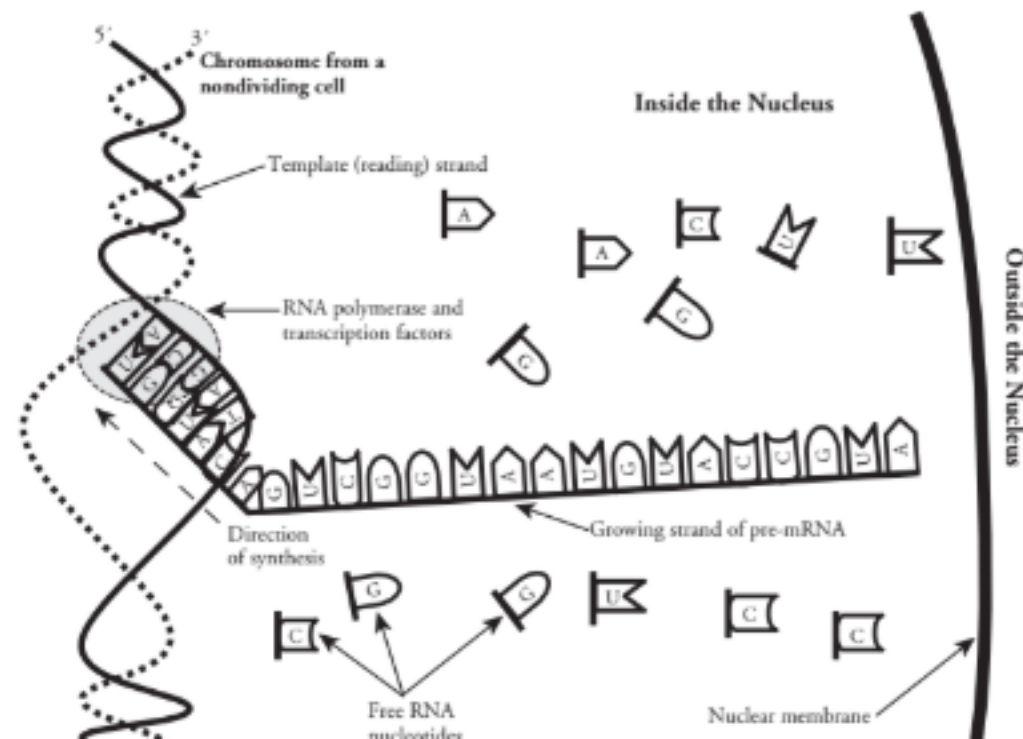
3. "Unzip" the two strands of DNA as shown in the image

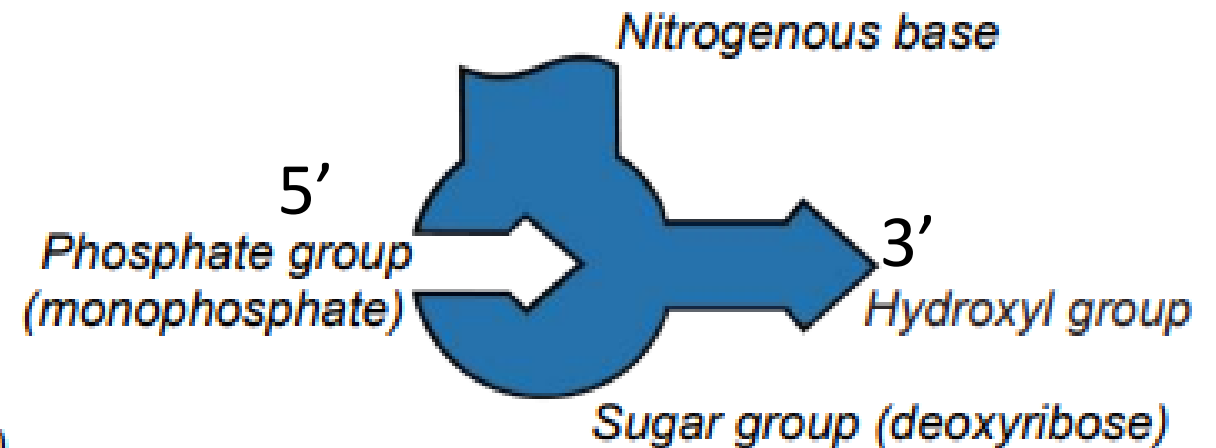
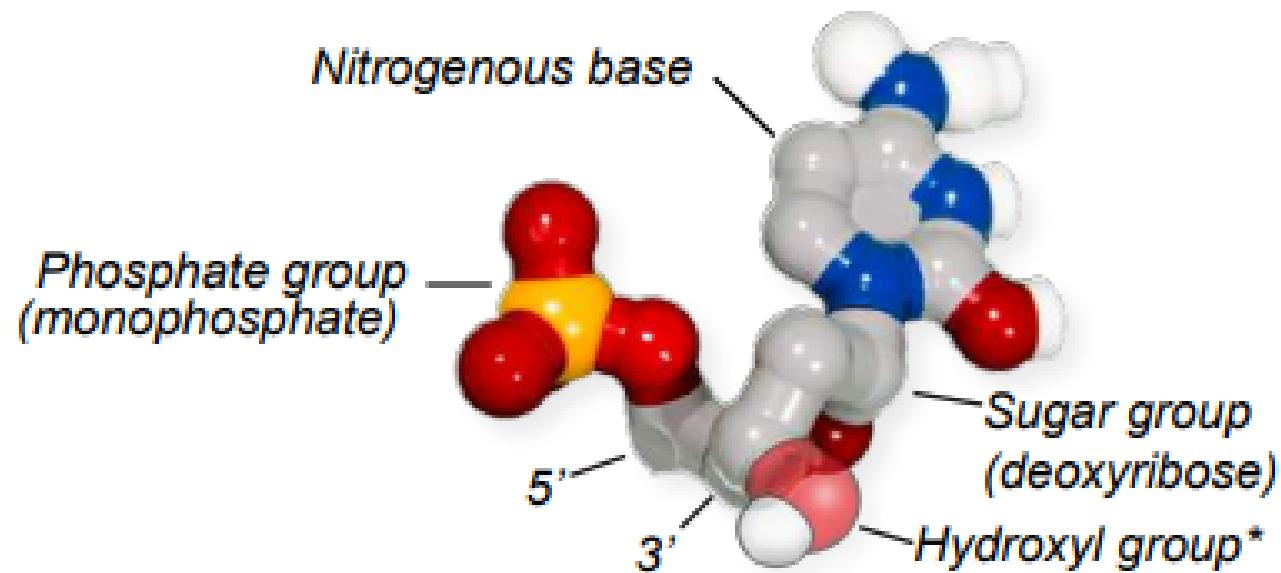


Paper clips?

POGILS?

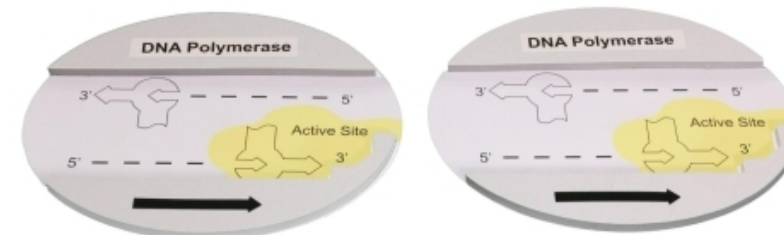
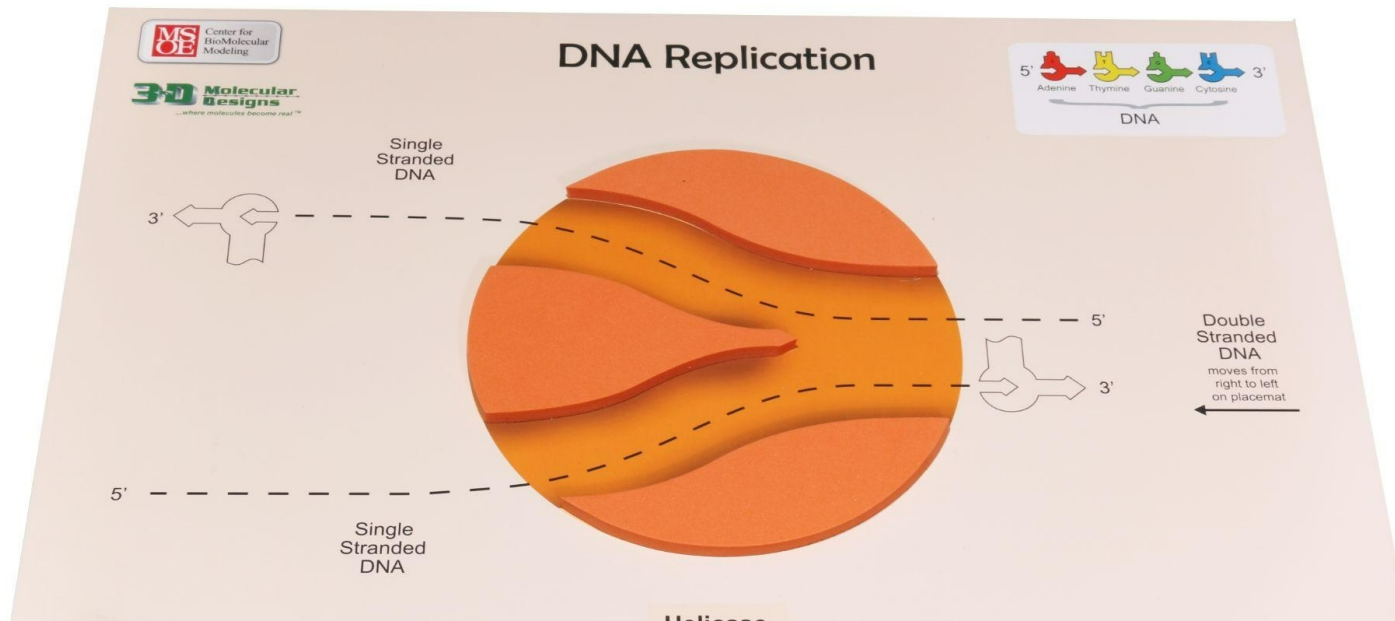
Model 1 – Transcription



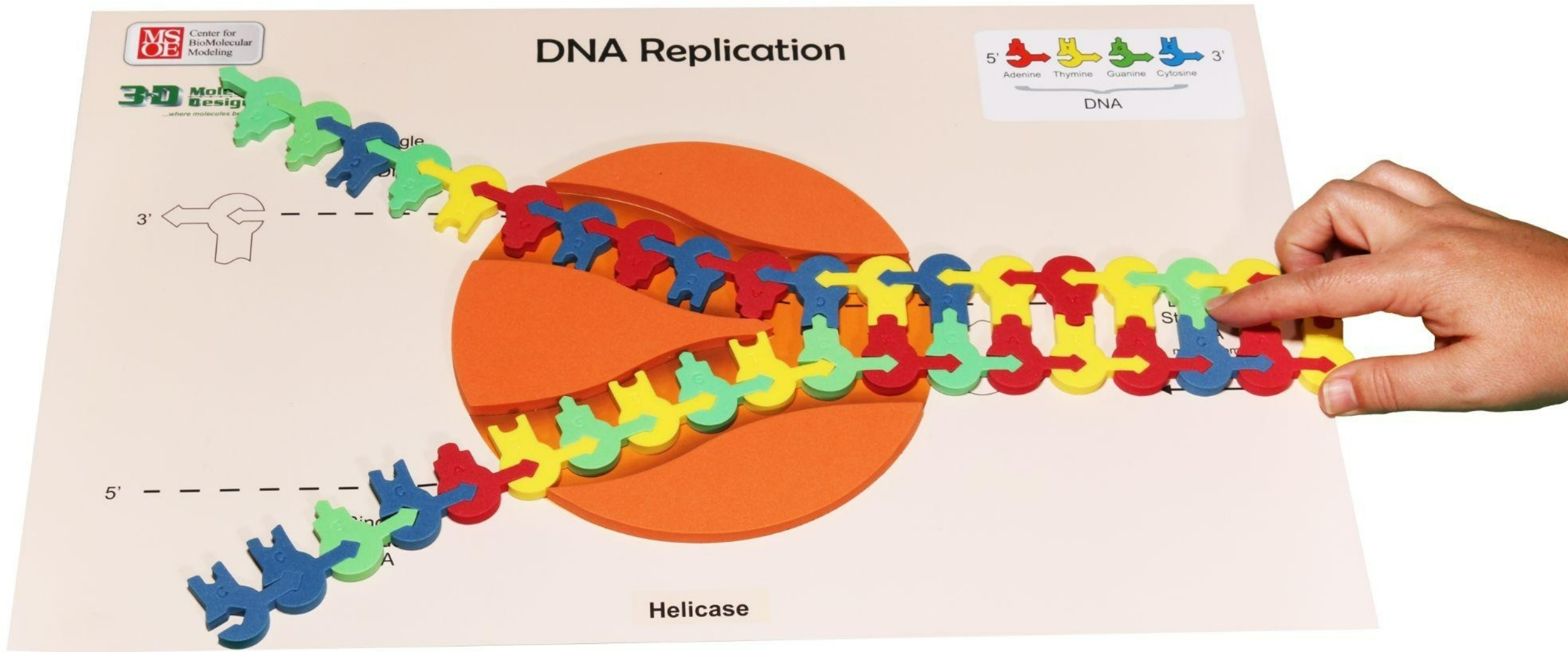


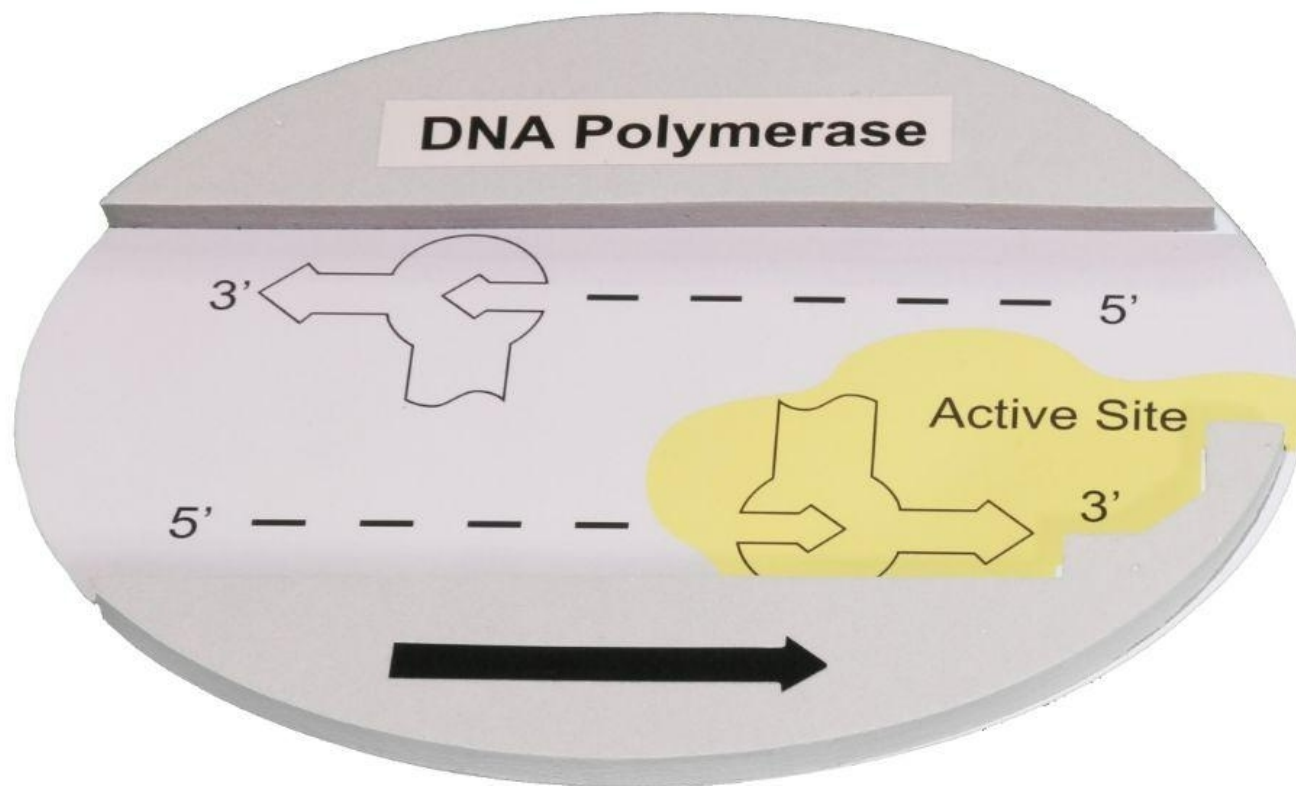
*The hydroxyl group (OH) shown in the above illustration has been added to the photo of the nucleotide, since this particular model of a nucleotide doesn't show the hydroxyl group.

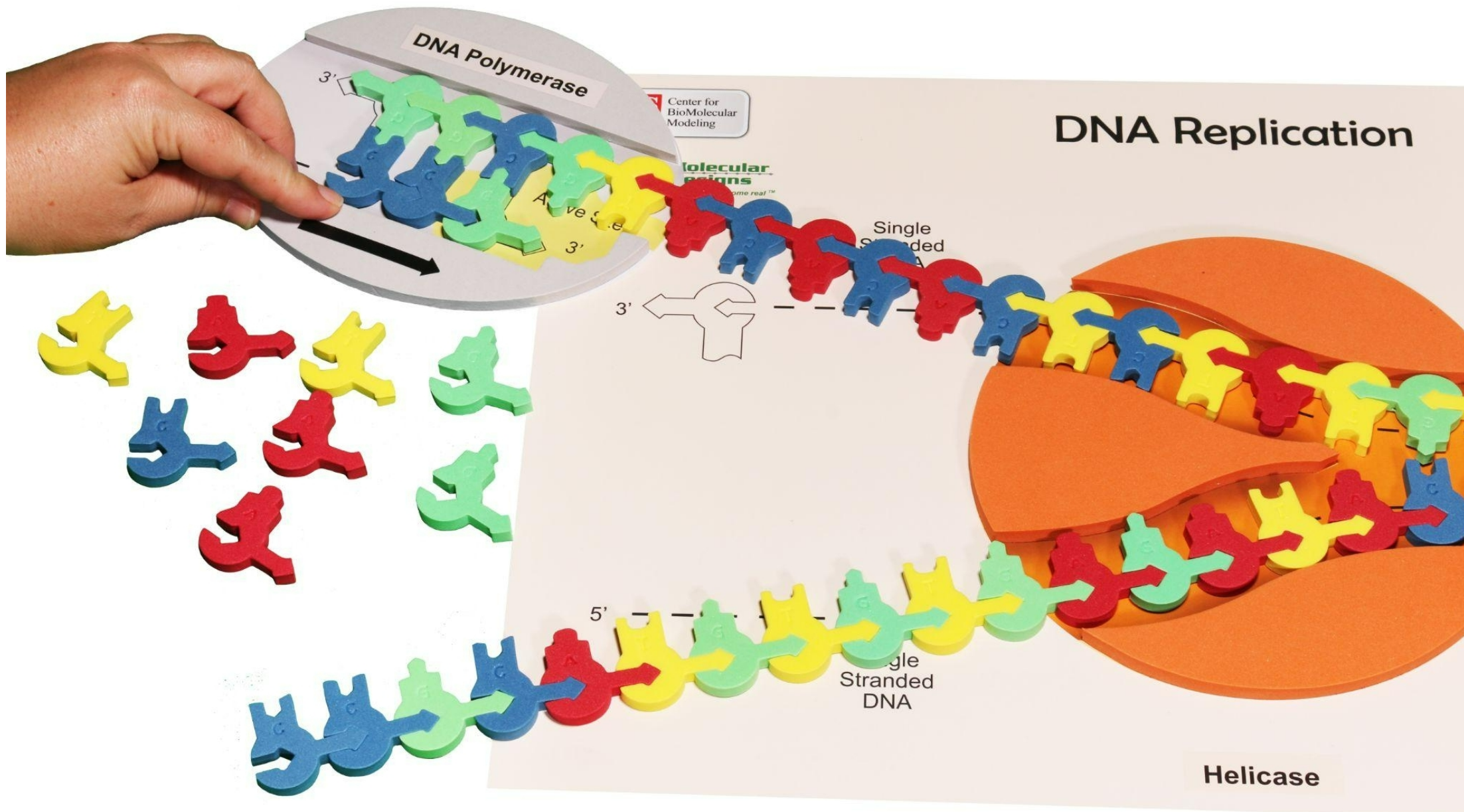
Modeling Replication

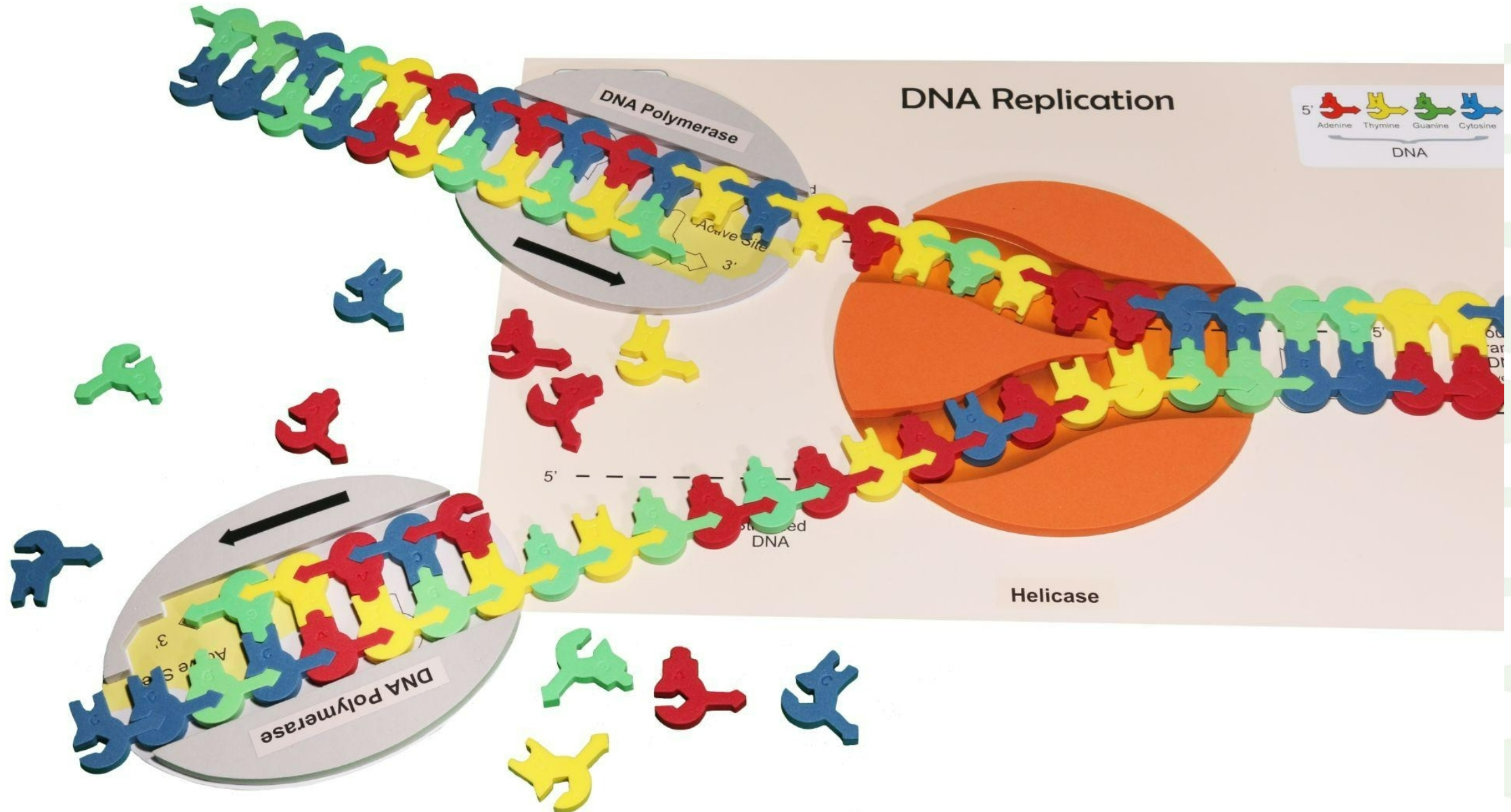


Feed your DNA strand through the helicase until you have about 10 bases sticking out

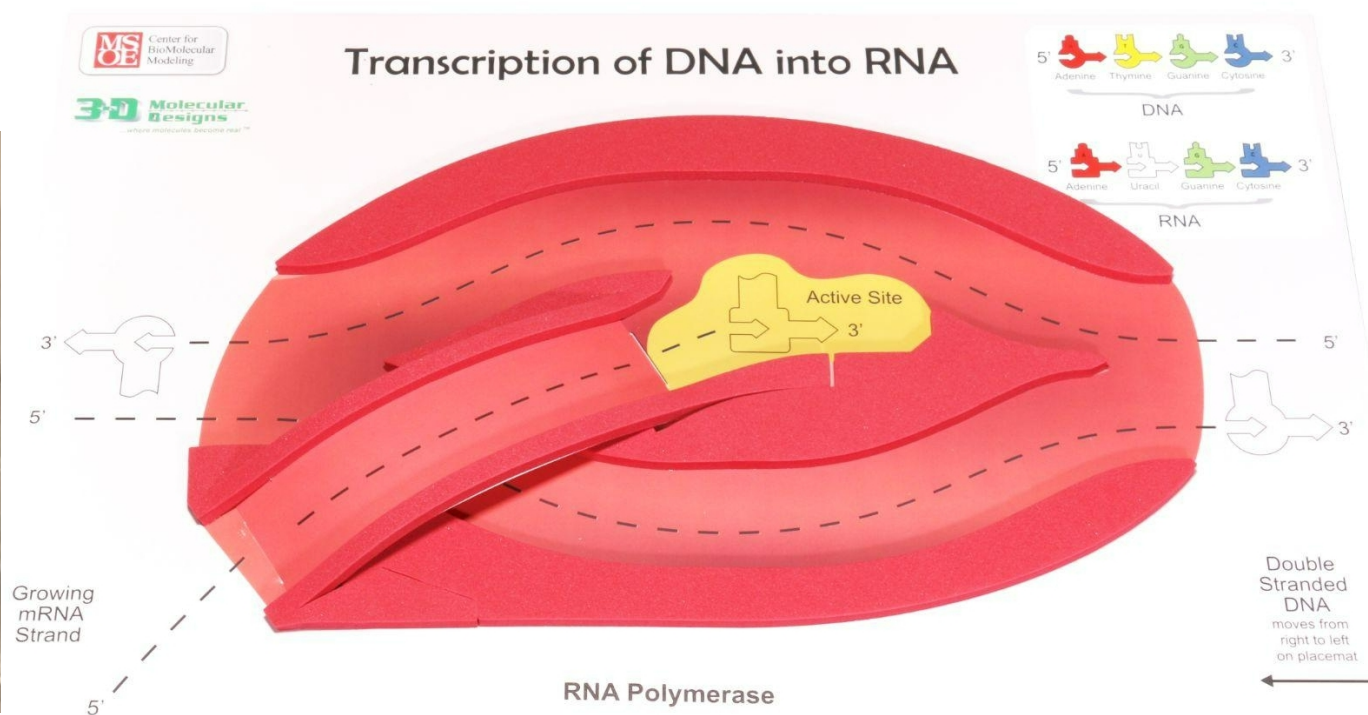


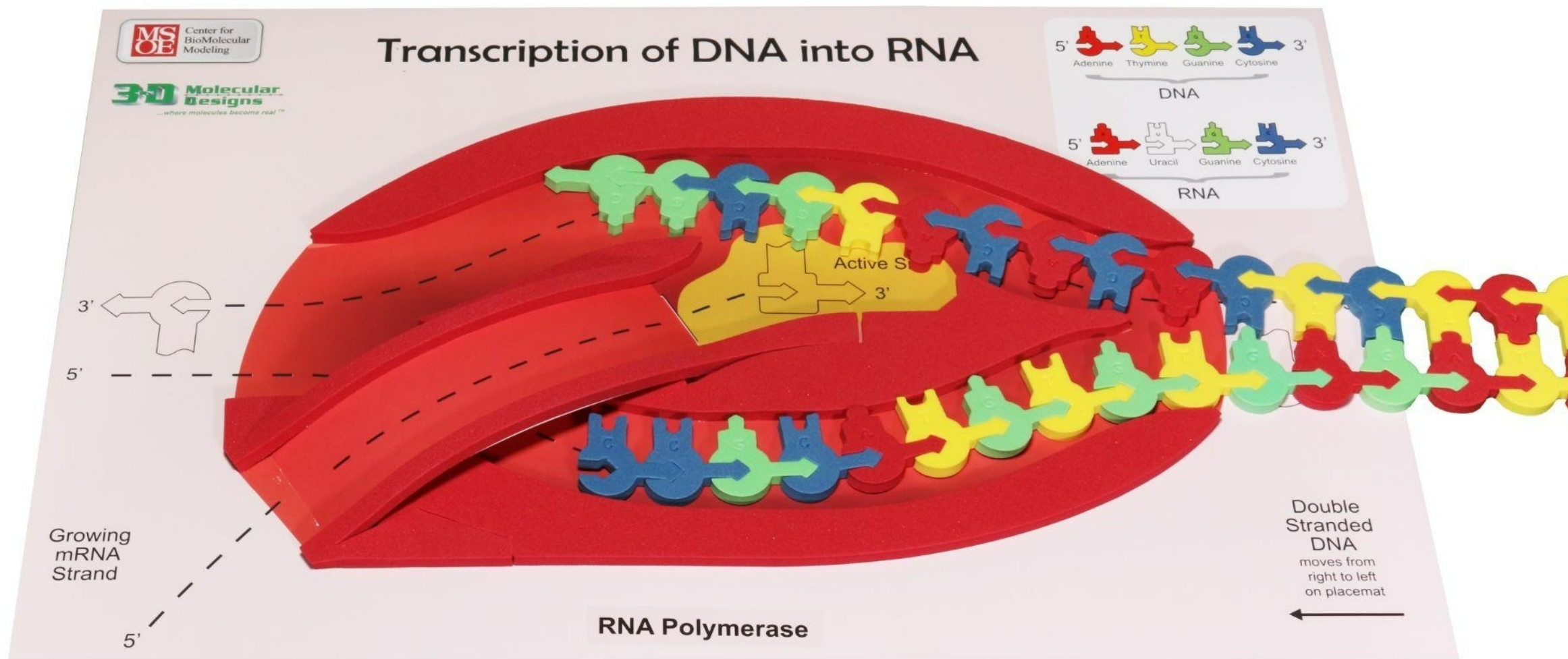




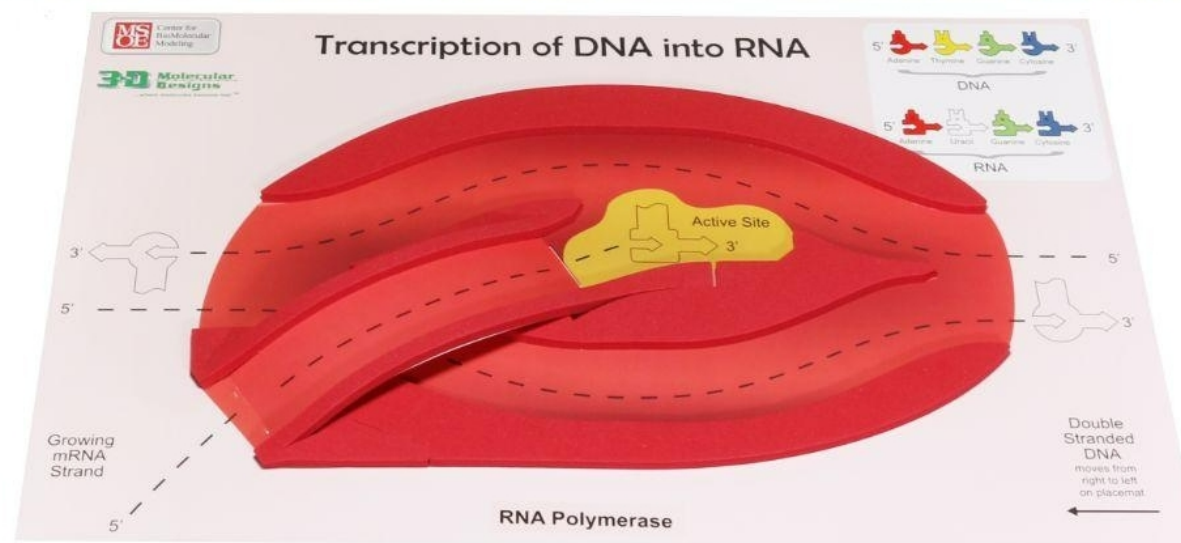


Modeling Transcription

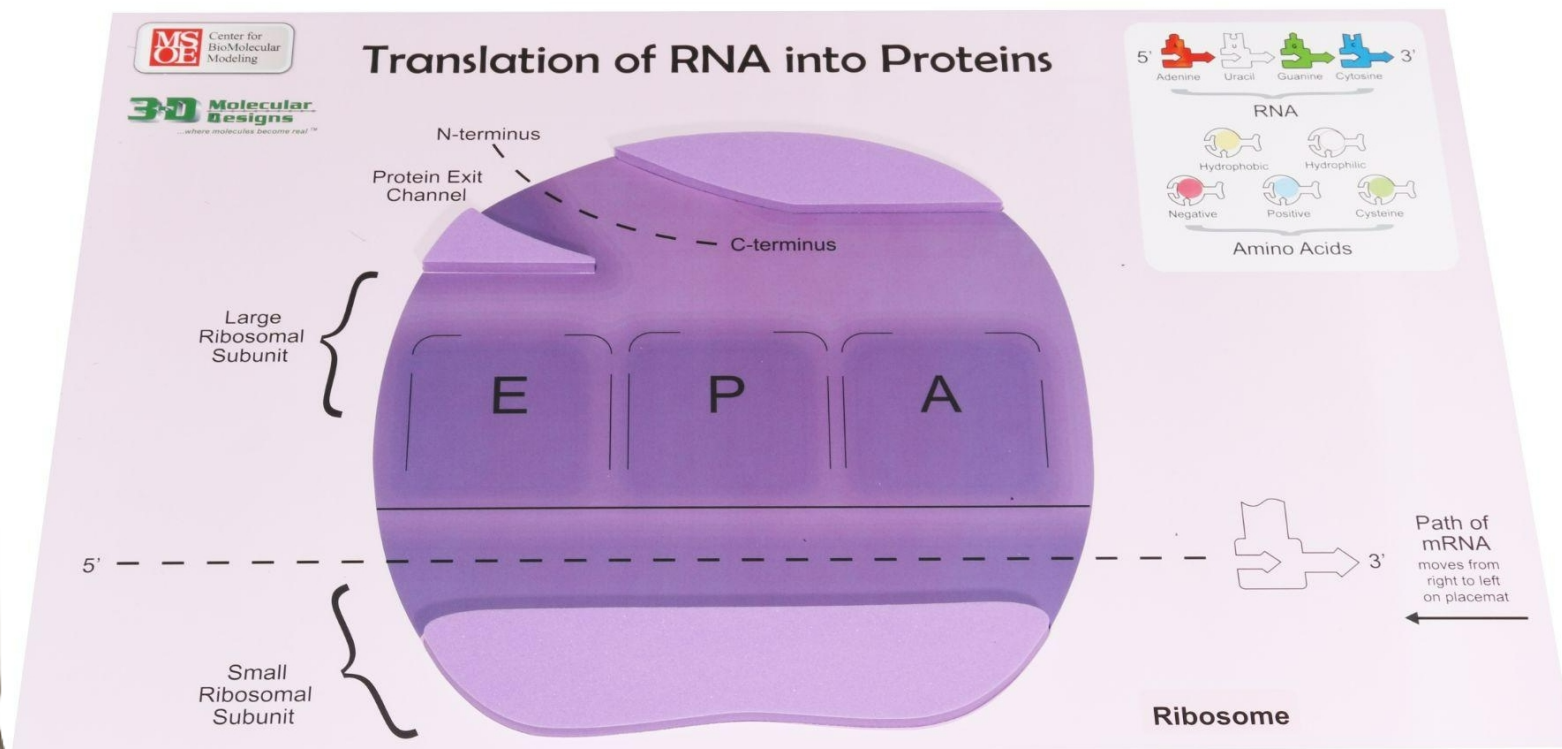






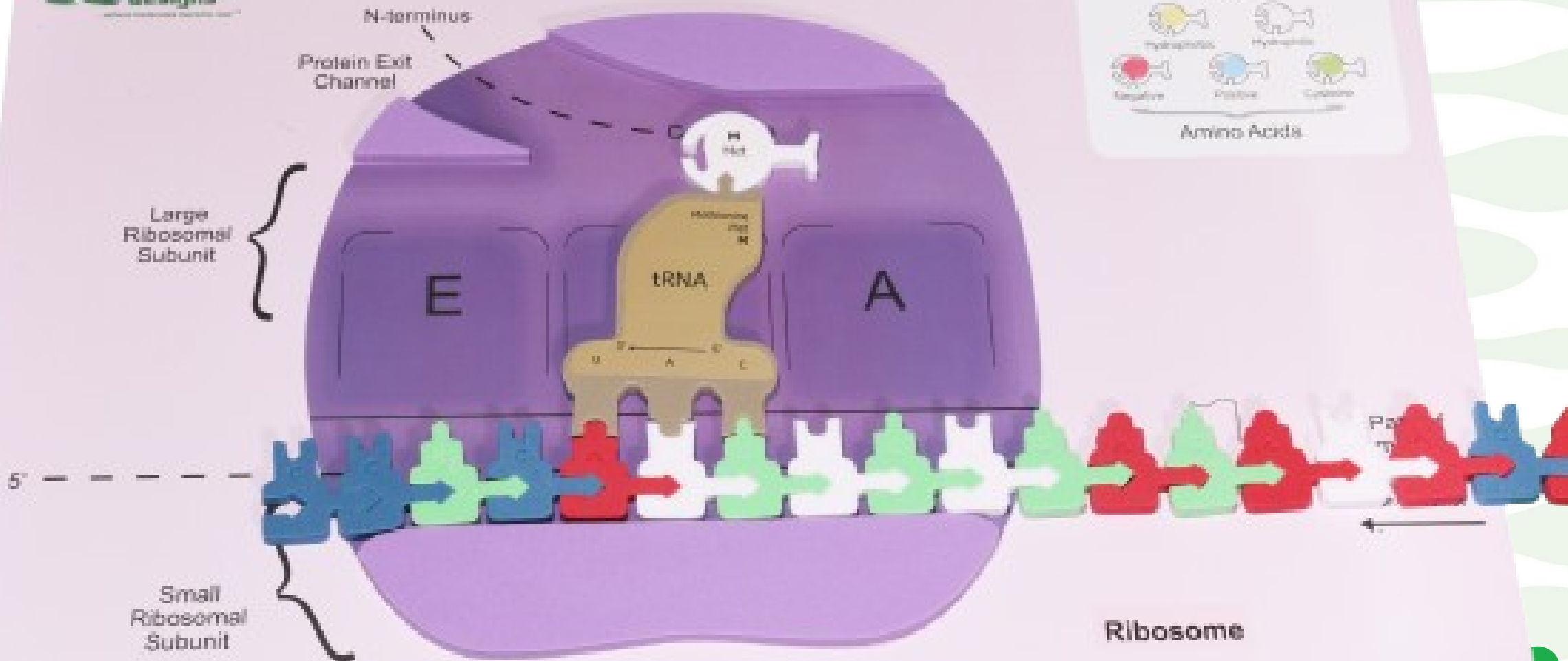


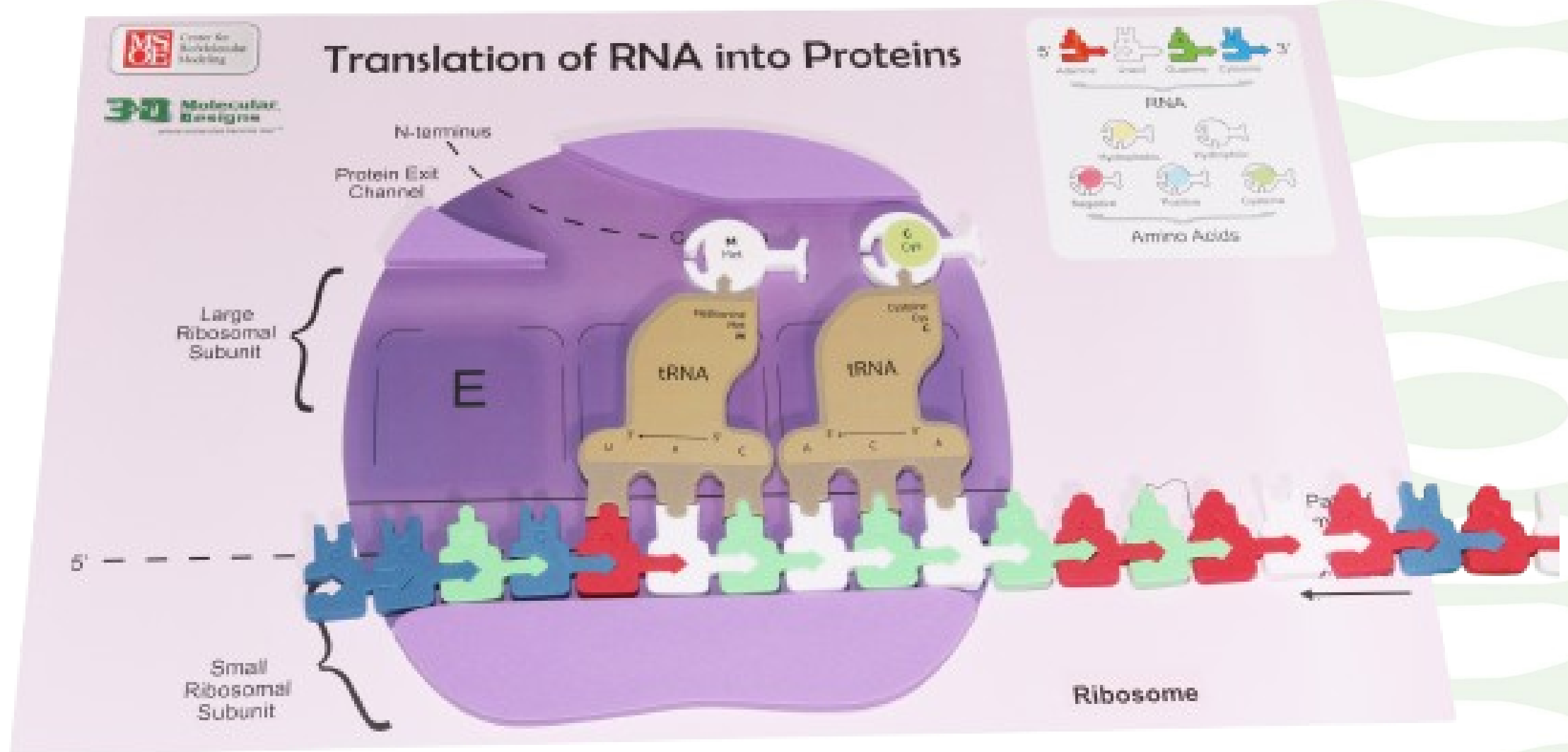
Modeling Translation

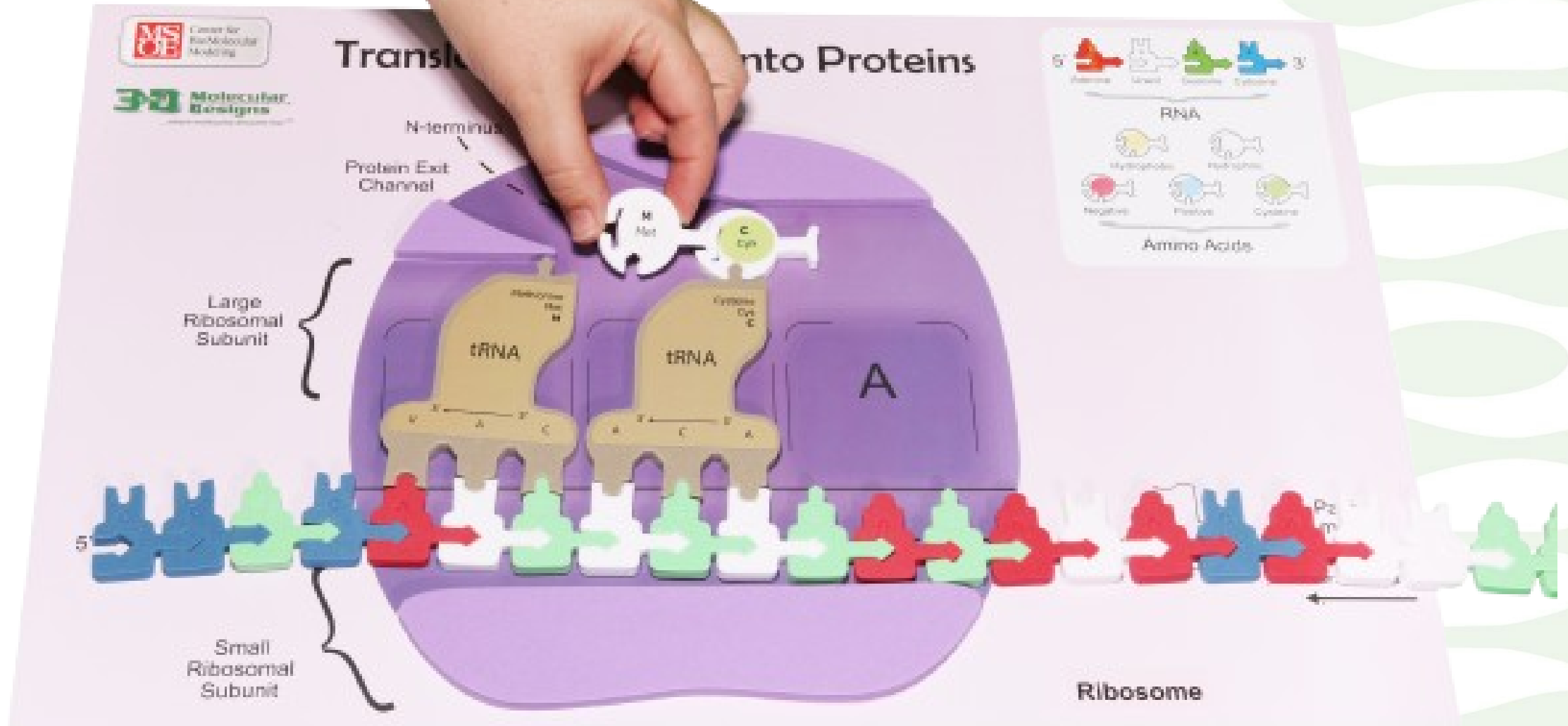


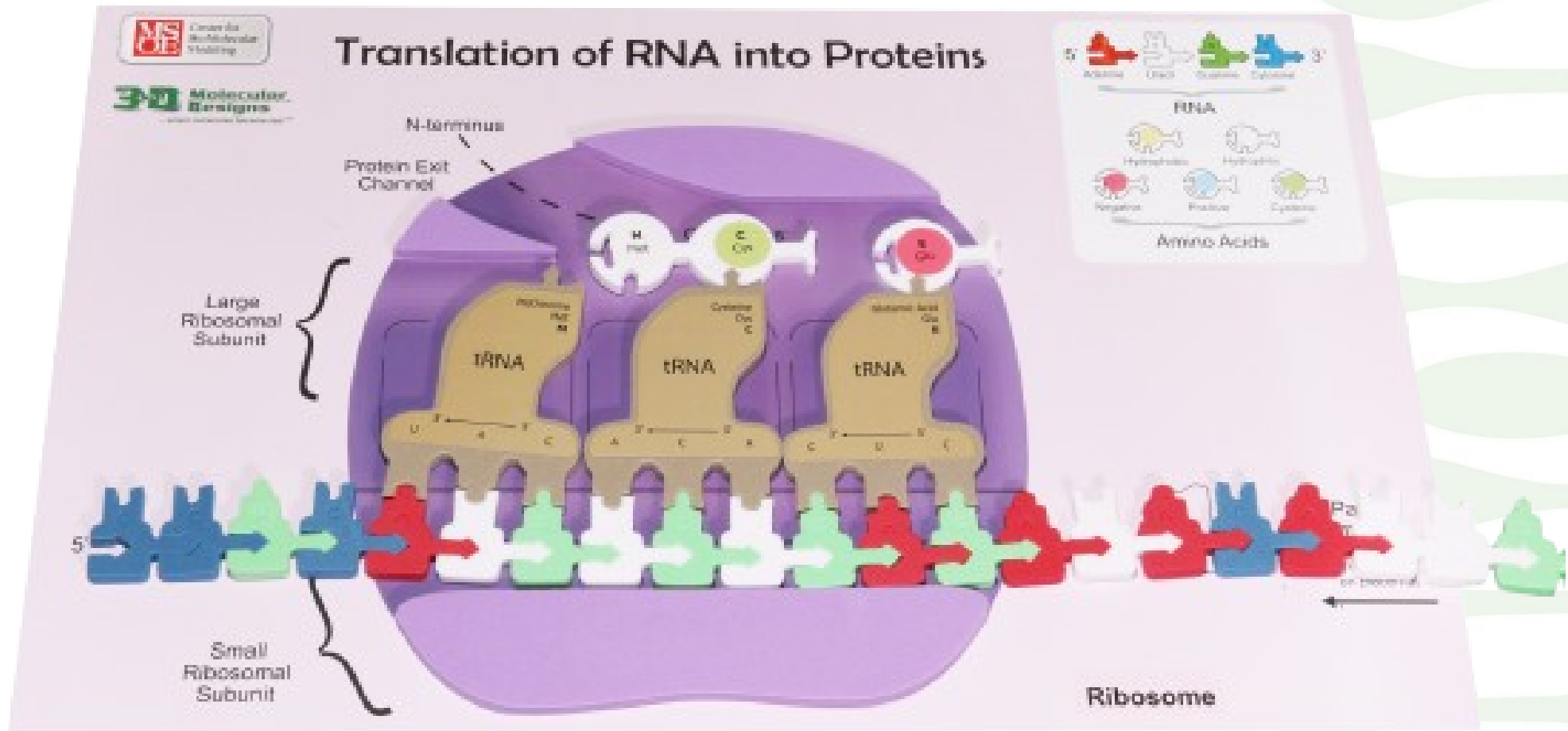


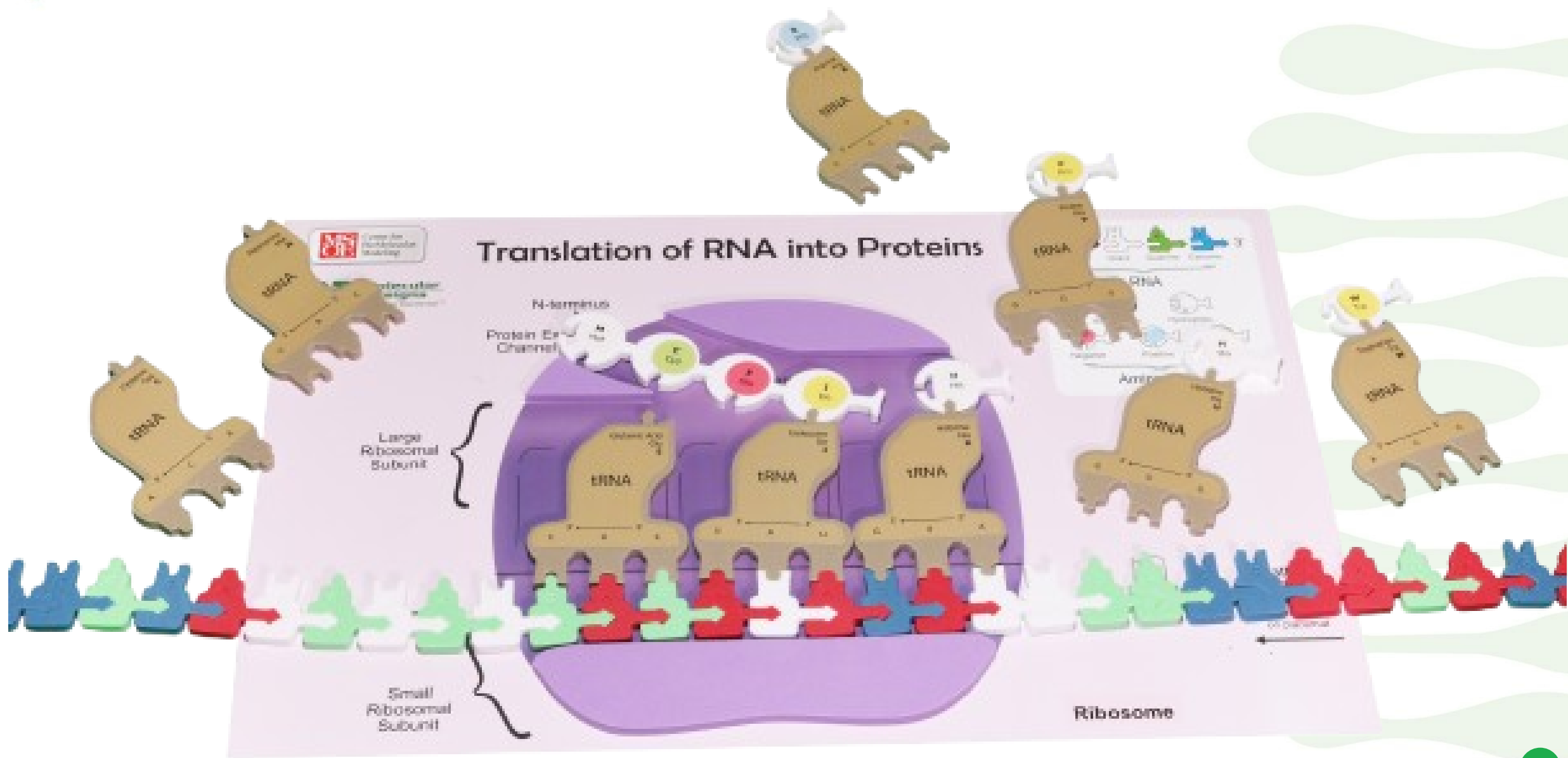
Translation of RNA into Proteins



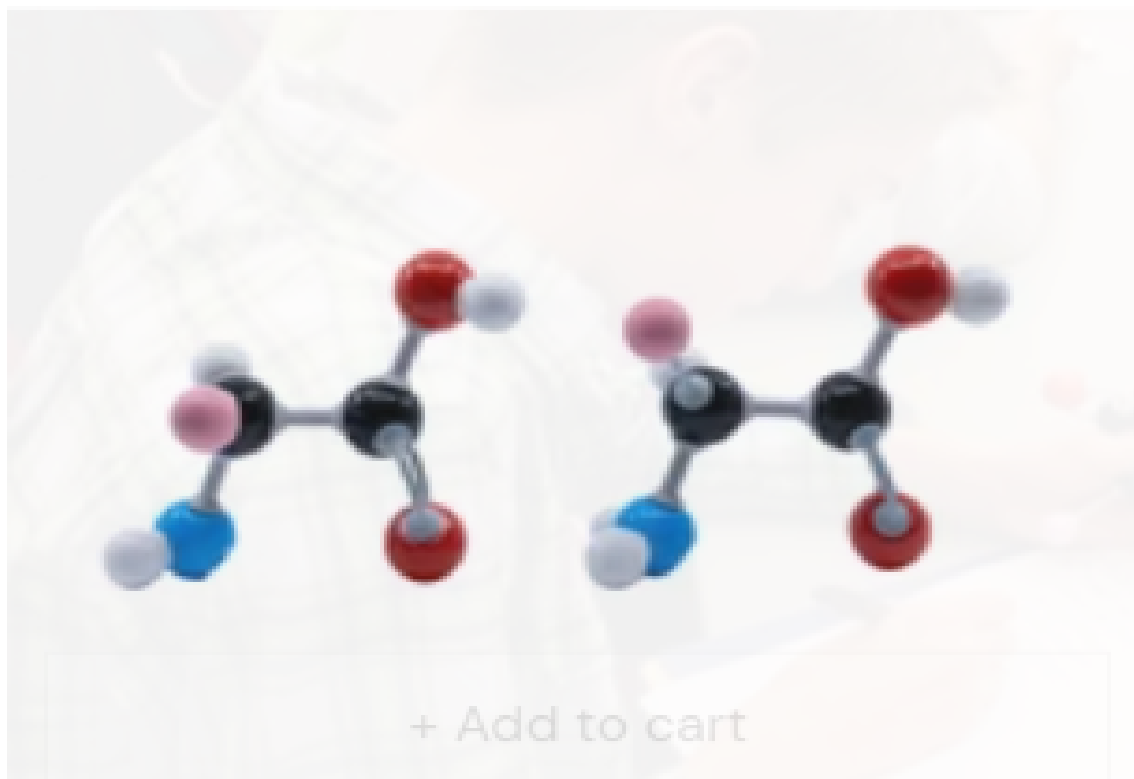








Now what?



**Amino Acid Building Block
Models[©]**



Amino Acid Starter Kit[©]

Learning Intentions/ Session Goals

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Success Criteria

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Workshop NGSS Connections

SEPs	CCCs	DCIs
Asking Questions and Defining Problems	Scale, Proportion, and Quantity	MS-PS1-1
Developing and Using Models	Patterns	MS-PS1-5
Planning and Carrying Out Investigations	Cause and Effect	HS-PS1-3
Constructing Explanations and Designing Solutions		HS-PS1-7



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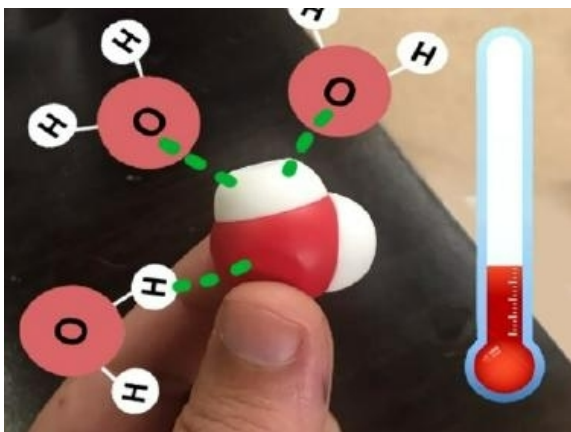
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- + In the past I checked out models that are not listed below. Can I still check them out?
- + How long can I keep the kits or models?
- + Is there a charge for borrowing the cases?



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