

# PDSA: Impromptu Lectures

# What's the Problem?

What do you wish professors knew to understand you better?

- “I am trying my best even though it may not reflect that in my work”
- “I wish they knew that life gets in the way of school and it can be a hard balance”

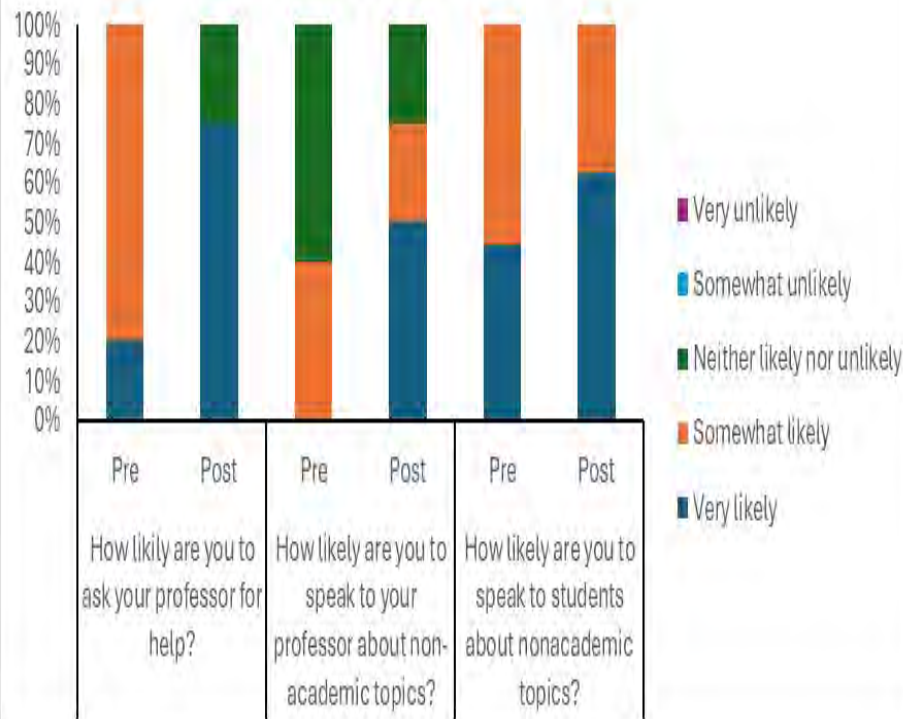
What do you wish students knew to understand you better?

- “I am approachable and not scary”
- “I have had a lot of the same experiences as them”

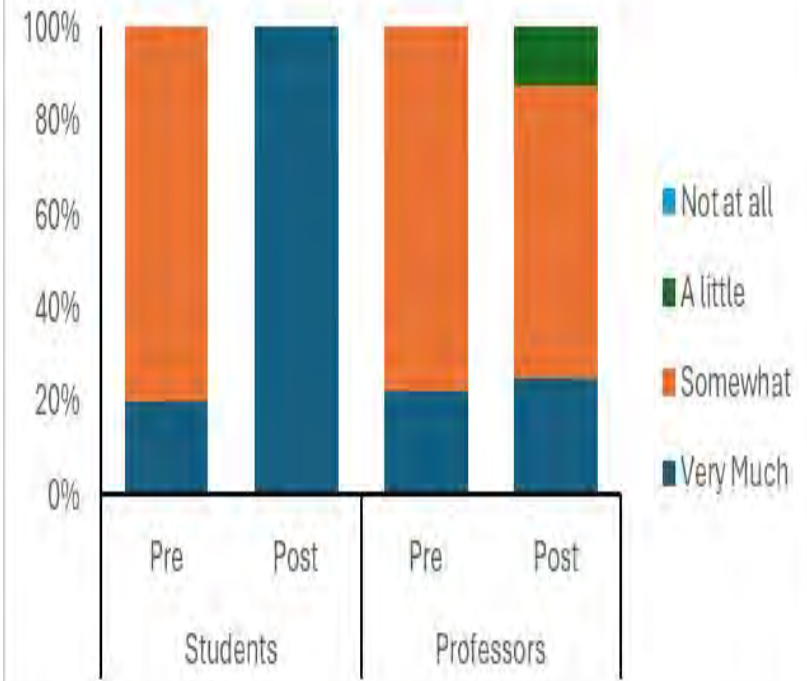
# Purpose

- Engage students and professors in a fun way
- Demonstrate to professors the challenge students face by switching topics between classes
- Demonstrate to students that professors are approachable and are HUMANS too

## Topics of Discussion

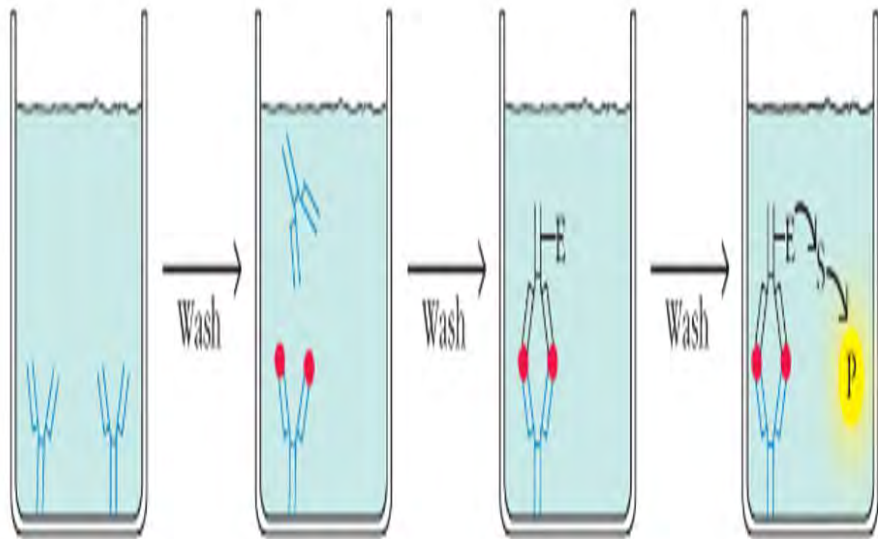


## Connection



Sample Presentations: I Need 3 Volunteers!

# Immunology



Used to measure antigens

Antibody-coated well

Add antigen to be measured

Add enzyme-conjugated secondary antibody

Add substrate and measure color



### Classical pathway

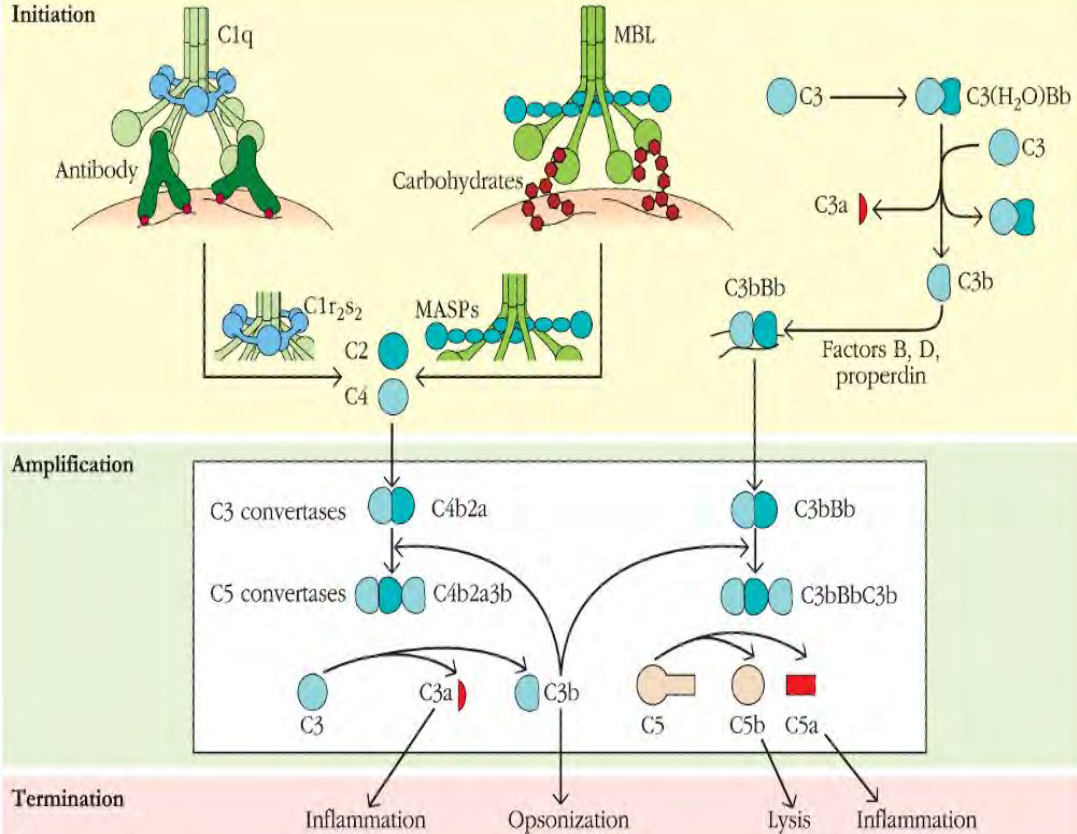
Antigen-antibody immune complexes

### Lectin pathway

PAMP recognition by lectins

### Alternative pathway

Spontaneous hydrolysis



© Macmillan Learning

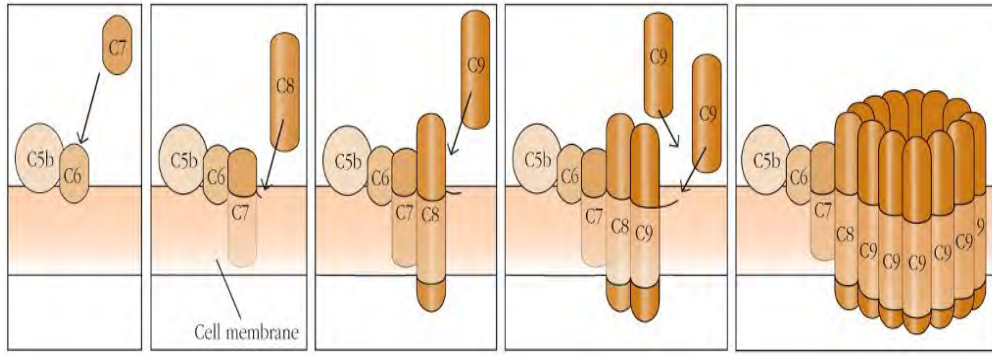
YOUR SHIRT AND SKIRT COLORS REALLY COMPLEMENT EACH OTHER WELL.

THANKS FOR THE COMPLIMENT.



DrawingsOf.com

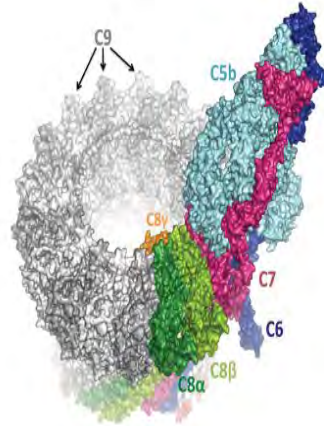
(a)



(b)



(c)



Part (b) republished with permission of Elsevier, from Humphrey, J. and Dourmashkin, R., 1969, The lesions in cell membranes caused by complement. Reprinted from *Advances in Immunology*, Volume 11, Copyright 1969, 75–115, Part (c) Drs. Robert Liddington and Alex Aleshin, SBP Medical Discovery Institute, La Jolla, CA © Macmillan Learning



Pineapple on Pizza?

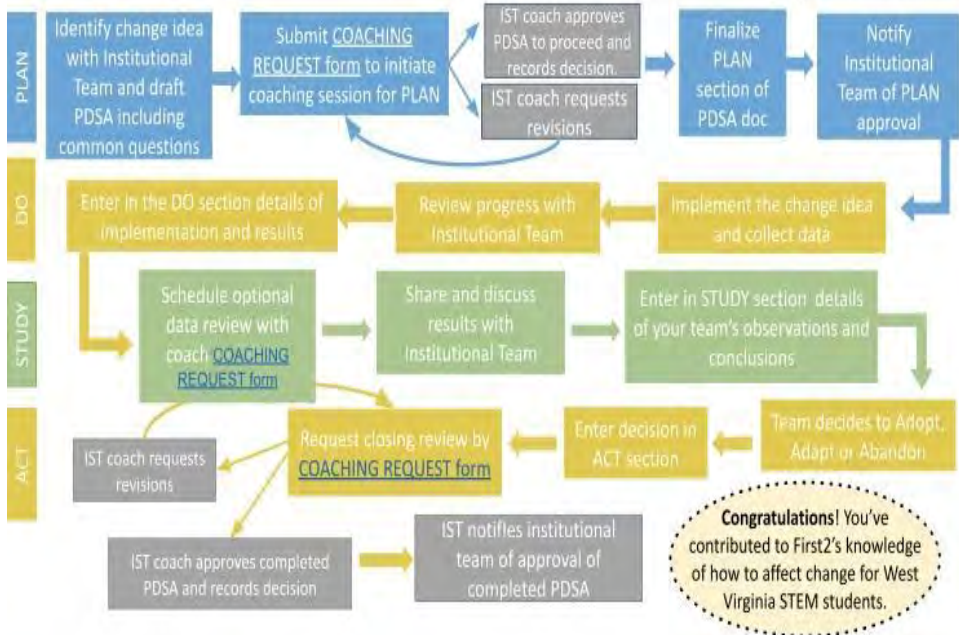


First2Network



## First2 PDSA Process

NOTE: Gray boxes indicate actions by Improvement Science Team (IST) coaches.



# FIRST2 DRIVER DIAGRAM 4/2020

## Primary Drivers

**Engagement with Undergraduate Institutions:** RFG STEM students are meaningfully connected within their undergraduate institutions (faculty, staff and campus) in ways that support retention and success

**Engagement with Science Process and Community:** RFG STEM students engage in immersive research experiences to develop a sense of belonging and competence in a STEM research community of practice.

**Readiness for College:** RFG STEM students enter college with requisite knowledge, skills and disposition to succeed.

**Engagement in Leadership:** RFG STEM students engage in leadership opportunities that identify issues impeding students' to success in STEM, help create solutions to these issues, and increase the reach of the network.

## Secondary Drivers

STEM course Policies and Practices

social STEM community engagement

Faculty Awareness and Professional Development

early research

Mentoring relationships

Peer-to peer academic support

math preparation

family engagement

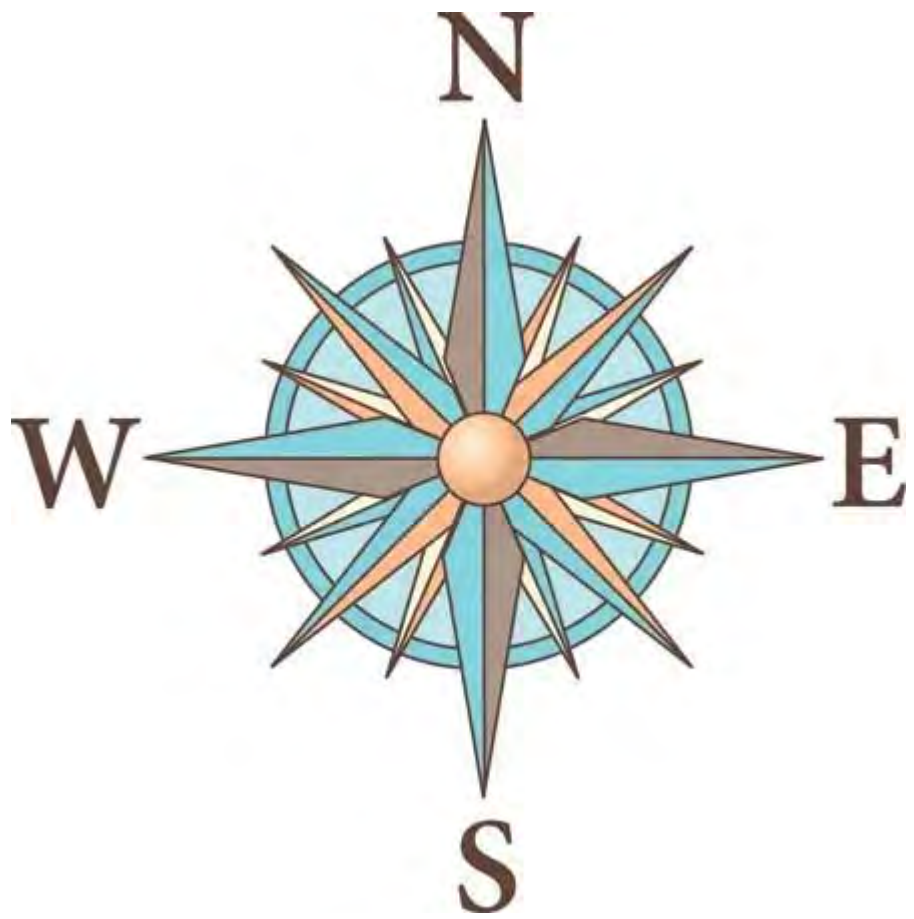
counseling

stronger situational awareness between workplace-academia

public outreach

Over the next 10 years, double the graduation rate (from 30% to 60%) of the students in West Virginia who enter college with a declared STEM major who complete a STEM degree within 4 years. [Measures](#)

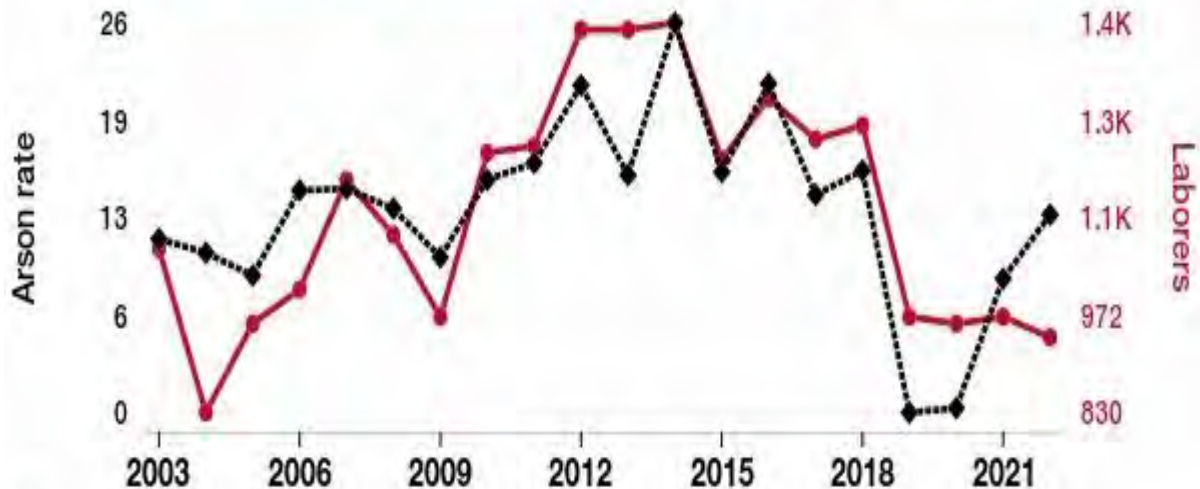




# Arson in Alabama

correlates with

## The number of library assistants in Alabama



◆ The arson rate per 100,000 residents in Alabama · Source: FBI Criminal Justice Information Services

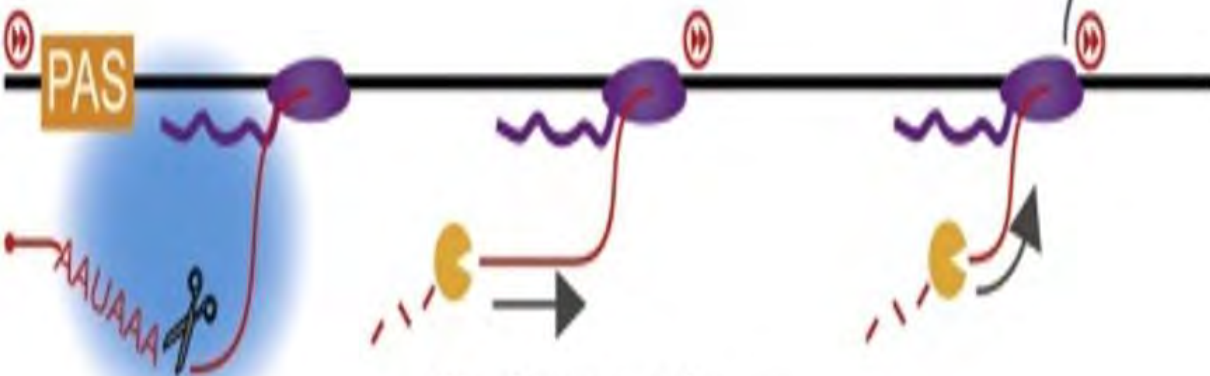
● BLS estimate of library assistants, clerical in Alabama · Source: Bureau of Labor Statistics

2003-2022,  $r=0.773$ ,  $r^2=0.597$ ,  $p<0.01$  · [tylervigen.com/spurious/correlation/1065](http://tylervigen.com/spurious/correlation/1065)



# Genetics

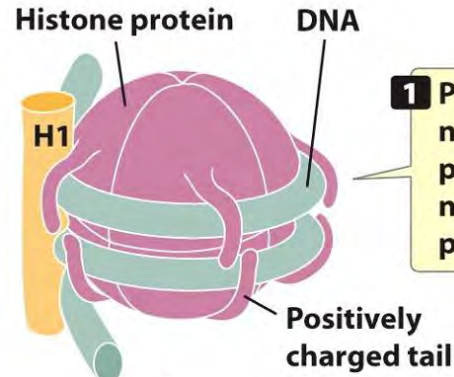
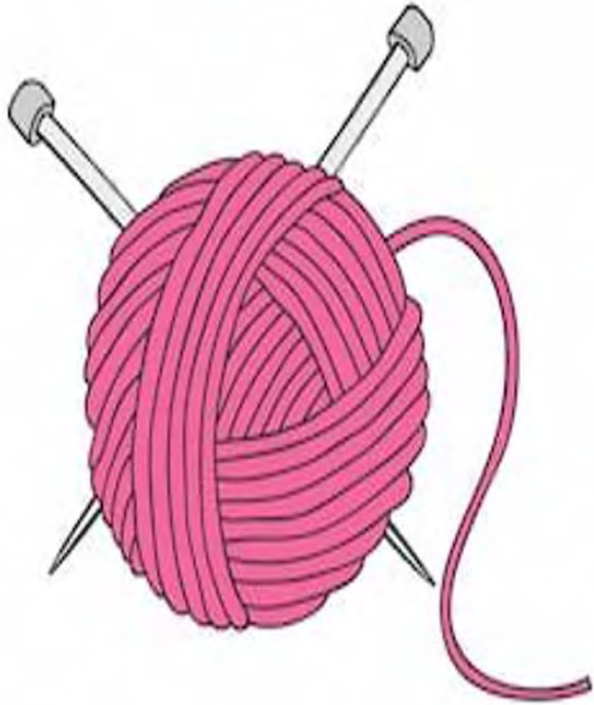
**1** Recognition and cleavage at the PAS



**2** 5'->3' exonuclease degradation

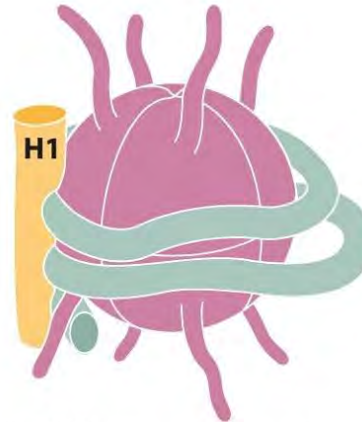
(C)





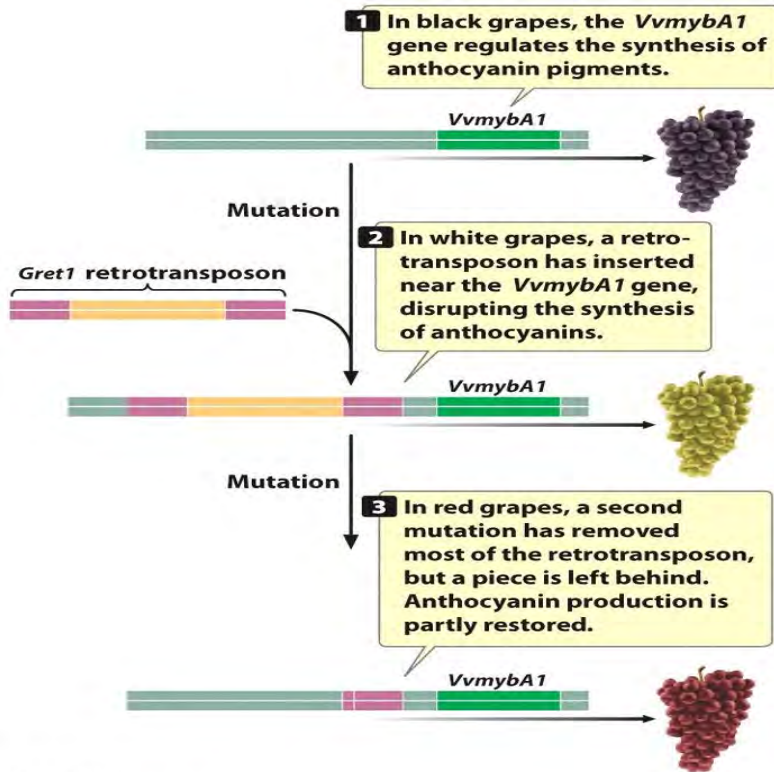
**1** Positively charged tails of nucleosomal histone proteins interact with the negatively charged phosphate groups of DNA.

Acetylation



**2** Acetylation of the tails weakens their interaction with DNA and permits some transcription factors to bind to DNA.

# Explain the Phenomenon



**Figure 18.26**  
*Genetics: A Conceptual Approach*, Fifth Edition  
© 2014 W. H. Freeman and Company



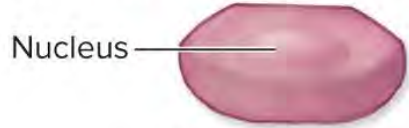
stacy ✨  
@spiritelsa



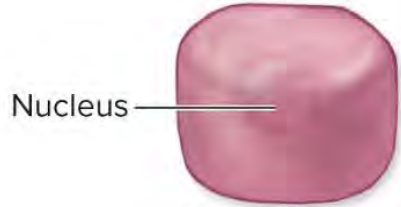
What's she telling Elsa? Wrong answers only



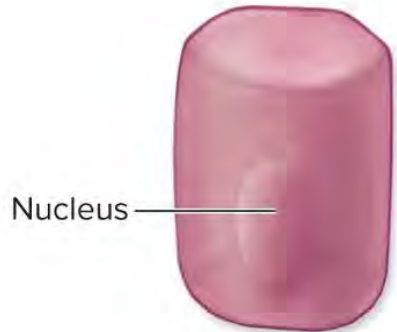
# Anatomy



**Squamous cell**



**Cuboidal cell**



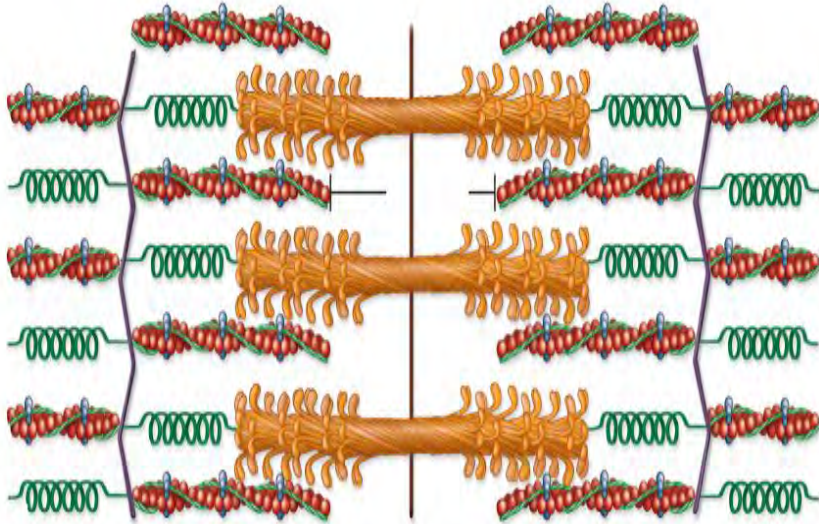
**Columnar cell**

Epithelial Cells vs. Snowman



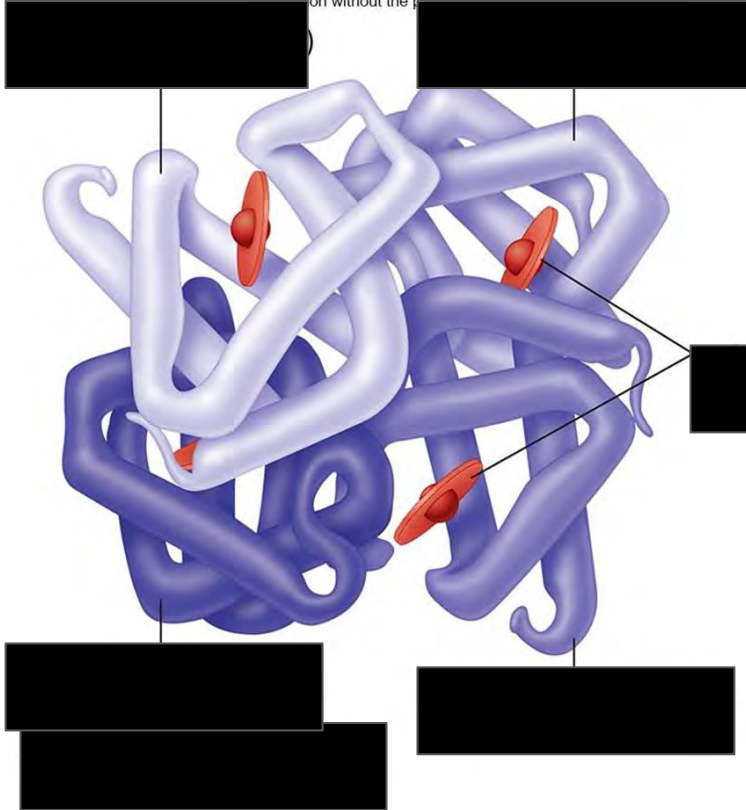
**(b) Epithelium classified by shapes**

## Muscle Contraction



# What is happening you might ask? Well...


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## Worst things to write in a Valentine's Day Card?



# Chemistry

A photograph of a straight white fence running alongside a paved road. The fence is composed of vertical posts and horizontal rails, extending into the distance without any curves or bends.

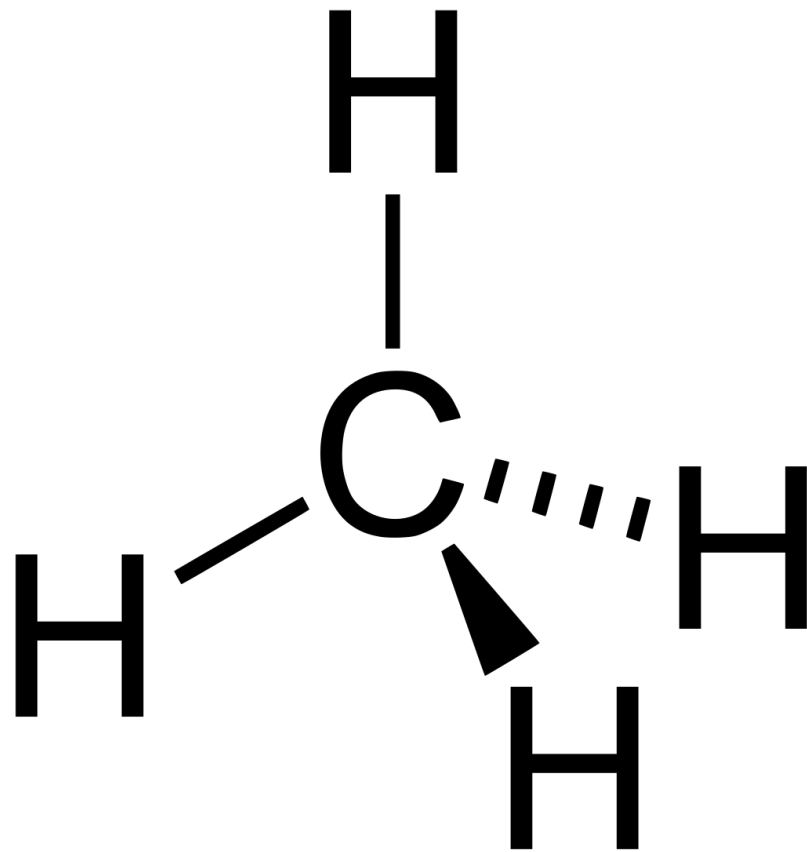
**Alkane**

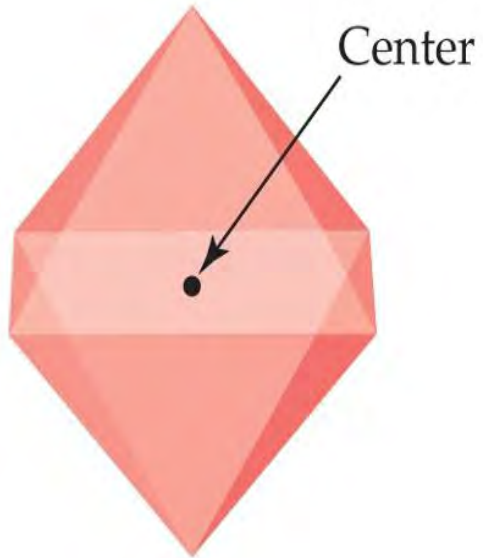
A photograph of a white fence that has a single, smooth curve. The fence is made of vertical posts and horizontal rails, and the curve is gentle and continuous.

**Alkene**

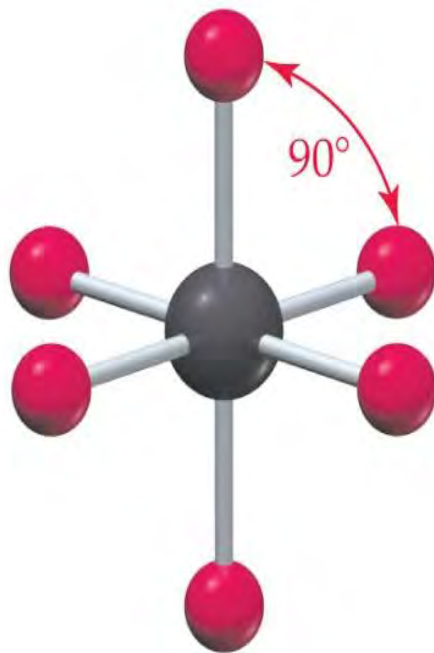
A photograph of a white fence that has a sharp zig-zag curve. The fence is made of vertical posts and horizontal rails, and the curve is composed of several sharp, angular turns.

**Alkyne**

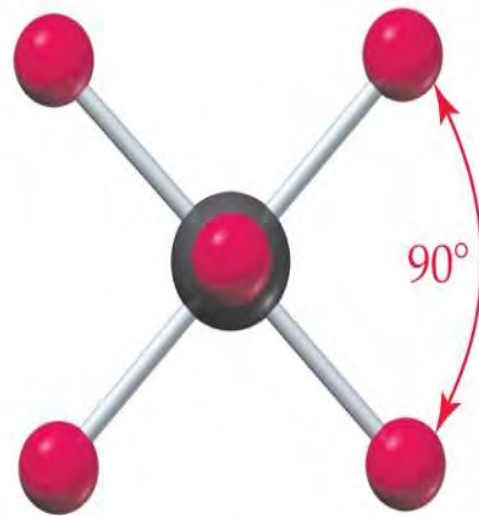




A regular octahedron



Side view



Top view

VSEPR



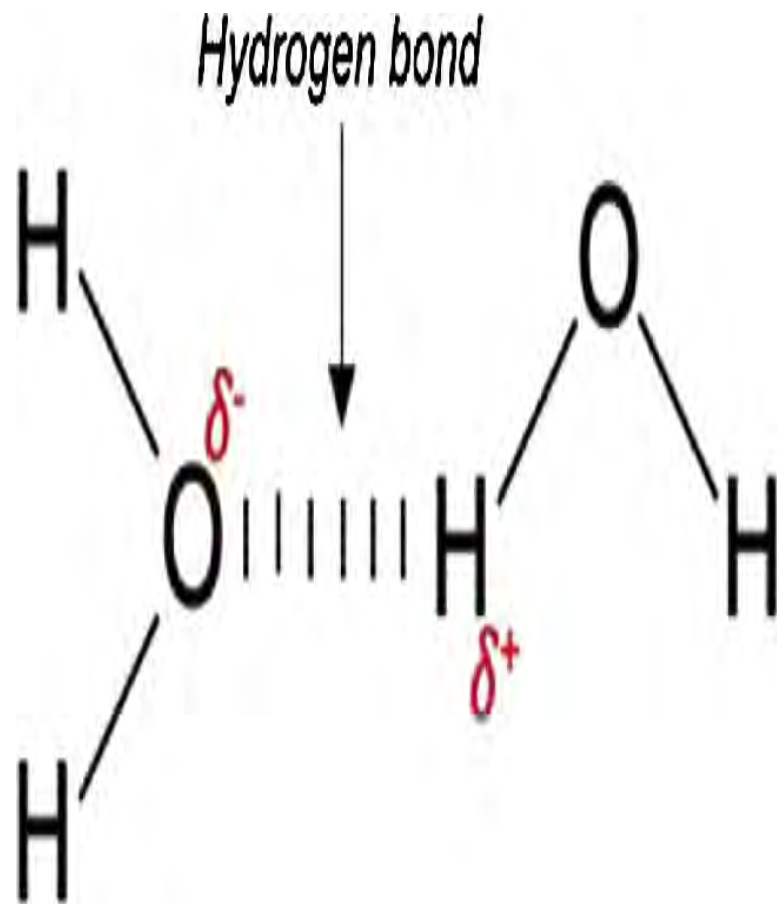
Dispersion  
Force

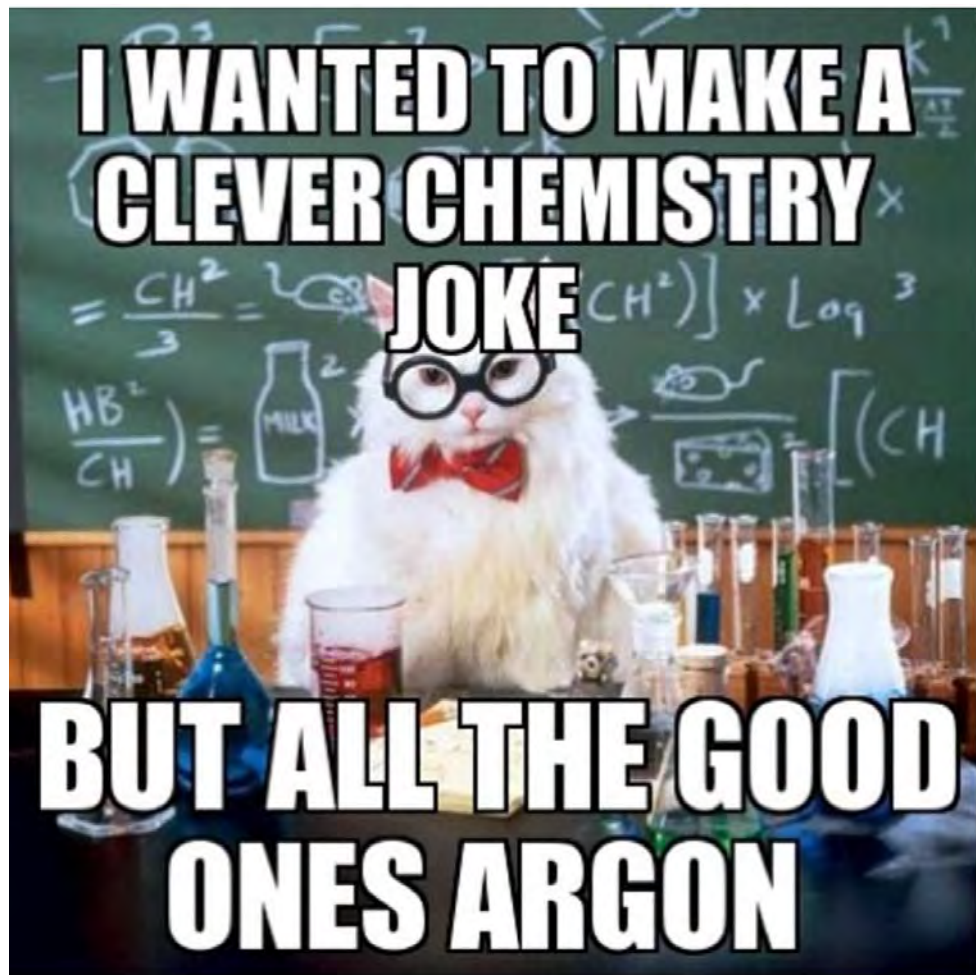


Dipole-Dipole  
Interaction



Hydrogen  
Bonding





Tell us your best joke!

# Questions