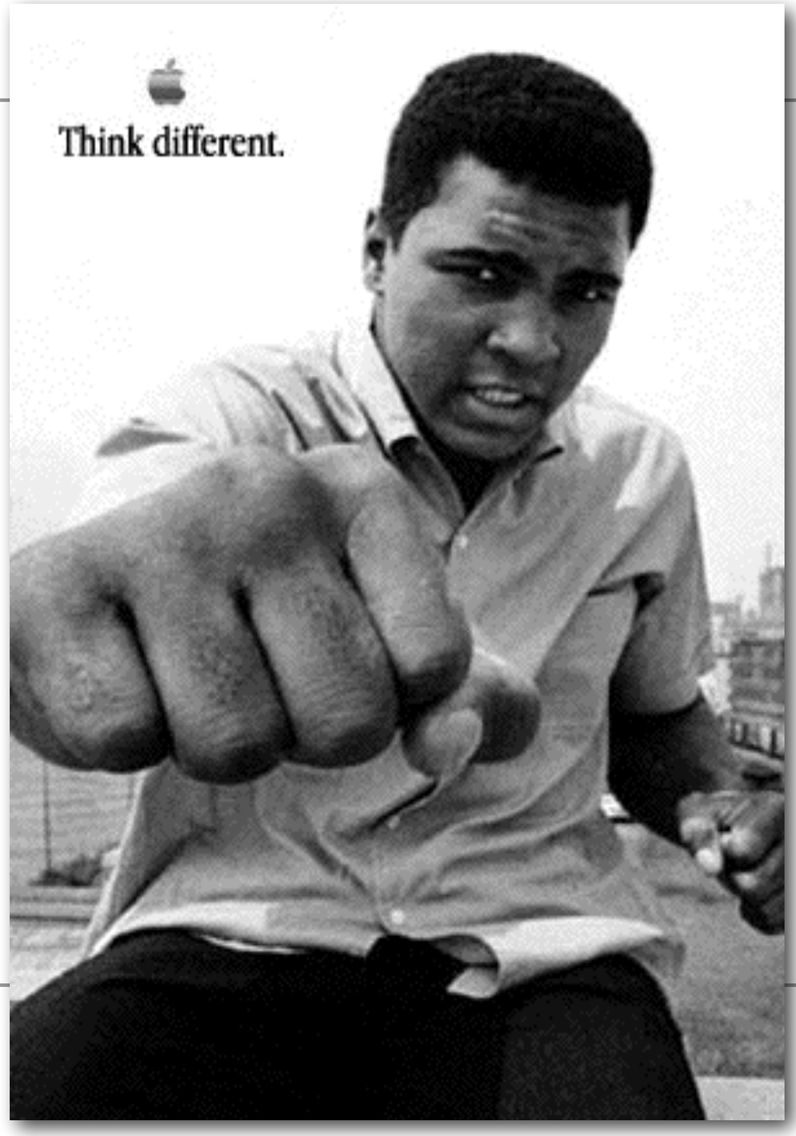
LB144-Pandemic *2022*

!



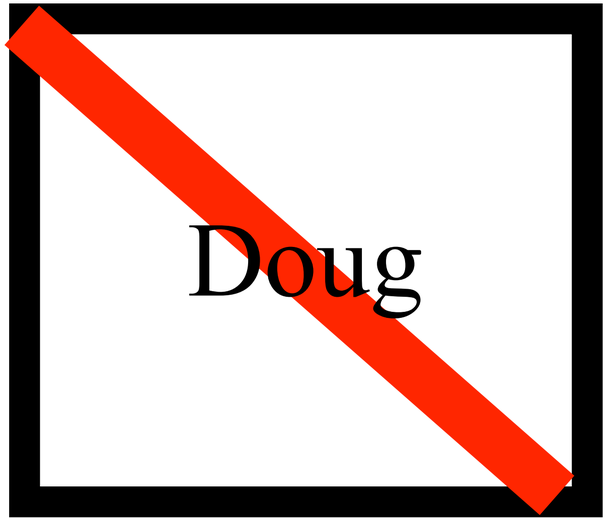
1. Clicker Attendance

- Launch your Top Hat app on your smart phone, or load the TopHat.com website, or text to the course phone number.

2. Sit with your group in lecture & lab

3. To Opt-OUT of being called upon

- Name Card with red stripe means you Opt-OUT (can Opt-OUT 3 times)



Announcements

1. **SALGs** completed by 38 (of 42) students, thanks!

MidSemester SALG -> http://35.9.122.10/MidSALG-F2022.xlsx

Statistics | Long Answers

Number	Question	Type	N	Mean	Std dev	Choices...				
	Your understanding of class content	Category								
1	As a result of your work in this class, what GAINS DID YOU MAKE in your UNDERSTANDING of each of the following?	Category								
1.1	START: What change or new approach do you think would help everyone challenge themselves to study and learn even more?	Long answer	37							
1.2	STOP: What do you think is helping you the least in learning biology in this course?	Long answer	38							
1.3	CONTINUE: In general, what do you think is helping you the most in learning biology in this course?	Long answer	38			1: no gains	2: a little gain	3: moderate gain	4: good gain	5: gre
1.4	Overall: How much has the class increased your understanding of the study of biology	Select one	38	3.8	0.84	1: 0%	2: 2%	3: 36%	4: 31%	5: 2
	Increases in your skills	Category								
2	As a result of your work in this class, what GAINS DID YOU MAKE in the following SKILLS?	Category				1: no gains	2: a little gain	3: moderate gain	4: good gain	5: gre
2.1	Design: Developing hypotheses, making predictions, and designing experiments to test them	Select one	38	3.9	0.91	1: 0%	2: 7%	3: 19%	4: 38%	5: 2
2.2	Analysis: Interpreting evidence collected during experiments, looking for patterns and different ways to represent data	Select one	38	4.3	0.86	1: 0%	2: 5%	3: 10%	4: 33%	5: 4
2.3	Collaboration: Confidently cooperating in teamwork, and practice team building, team communication and leadership	Select one	38	4.3	0.87	1: 0%	2: 2%	3: 17%	4: 21%	5: 5
2.4	Speaking: Gaining practice speaking and listening to others in large & small groups.	Select one	38	4.2	0.97	1: 0%	2: 5%	3: 19%	4: 17%	5: 5
2.5	Reading: Gaining practice at careful and critical reading of text, identification of points, as well as slow deliberate reading of figures	Select one	38	4.3	1.00	1: 0%	2: 10%	3: 7%	4: 24%	5: 5
2.6	Writing: Gaining practice composition of text, writing manuscripts, building figures and graphs	Select one	38	4.2	0.89	1: 0%	2: 5%	3: 14%	4: 33%	5: 3
	Class impact on your attitudes	Category								
3	As a result of your work in this class, what GAINS DID YOU MAKE in the following?	Category				1: no gains	2: a little gain	3: moderate gain	4: good gain	5: gre
3.1	Understanding how scientists think and perform the subject of biology	Select one	38	4.0	0.91	1: 0%	2: 5%	3: 24%	4: 31%	5: 3
3.2	Your confidence in your own ability to think like a scientist and read biology experimental findings & figures.	Select one	38	4.1	0.84	1: 0%	2: 7%	3: 7%	4: 50%	5: 2
3.3	Your confidence in your own ability to explain the science discussed in the textbook and course.	Select one	38	3.9	0.83	1: 0%	2: 7%	3: 14%	4: 50%	5: 1
3.4	Your confidence in your own ability to think like a scientist in the design of laboratory research projects	Select one	38	4.0	0.88	1: 0%	2: 7%	3: 14%	4: 43%	5: 2
	Integration of your learning	Category								

Statistics | Long Answers

START: What change or new approach do you think would help everyone challenge themselves to study and learn even more?	STOP: What do you think is helping you the least in learning biology in this course?	CONTINUE: In general, what do you think is helping you the most in learning biology in this course?	HOW do you think the 80 minute lecture discussions might have affected your learning?	Random picking: What aspect(s) of the approach do you think effected your learning?	Professor in the laboratory class: How do you predict this approach might help student learning?	What aspect(s) of the approach, being taught by experts Malcolm Campbell and Chris Paradise, do you think effected your learning?	How do you think using names help learning?
Trying to teach the material to someone else while reading the material.	Not factoring in a traditional lecture in addition to looking at research to learn biology topics.	Applying biology concepts to a research project and trifecta-ing research paper figures.	It allows me to stay engaged the whole class period.	It helps me understand what I'm learning if I can explain it aloud, and it has helped improve my comfortability with public speaking.	If both the professor and TAs are grading the lab work, students should be able to ask both of them questions in lab.	Hearing explanations from the people that wrote the book helps my understanding of the book concepts.	It creates a closer rela between the student a professor.
Taking the time to understand not only the reading, but the figures associated with the reading is crucial to understanding and studying the content. Looking in the bibliography for the research papers and reading over those is also very helpful.	I think two regular lectures than reserving one lecture for journal club would be more beneficial.	Cold-calling is definitely a driving factor when it comes to my learning in this course. I take time to prepare and study my notes so that I am ready for lecture.	Through cold-calling and basically a student-run class, it forces students to understand and learn the material prior to class, so that by the time they get to class they can pretty much teach everyone else the content. This has taught me study skills as well as how to take effective and descriptive notes.	Because I was nervous or speculated I would be called upon, I always made sure I understood the content prior to coming to class. Even if I wasn't called upon, I still knew the answer and the material.	Dr. Luckie was present in lab meetings, but the graduate students mainly ran the lab meetings. He helped when they had questions or when other students had difficult questions, but I feel as though the ULAs mainly ran the lab portion of the course.	I feel as though Dr. Luckie could have reiterated what the experts taught. Sometimes I forgot that an expert was teaching because we were just reviewing ideas from the textbook. I did not really see a big difference in my learning when being taught be an expert.	I felt as though the UL Luckie truly cared abo learning and my input It is easy to feel like yo professor's do not care are in a big lecture hal class I always felt com speak up and share m Using names helps stu interact and feel welcc share their thoughts in Makes the class more
If we had an in-class review quiz on Tophat either at the beginning or class or end of class to review the material.	I think the online lectures because I sometimes do not know the correct answers and have to guess, but then I have to wait until the correct answers are released and they don't give a reasoning as to why they are correct.	Preparing for class by reading and taking the notes ahead of time so that we can ask questions about the material.	I have learned quite a bit during lectures, but sometimes cold calling can be frightening if I am unsure on a topic.	I got more prepared for class just in case I was called on.	I am able to directly ask him my questions to ensure the correct response.	I was able to listen to another classes discussion and learn from their responses.	The student feels mor and important becaus professor took the time know their name. The value this because the the prof values their w responses.
I think students would be able to learn more if there was more content aimed at introducing the basics of topics(crash course style				I have never felt more on edge or anxiety ridden in a classroom in		Who is saying the words has zero impact on my learning. The	Ironically, Im pretty su

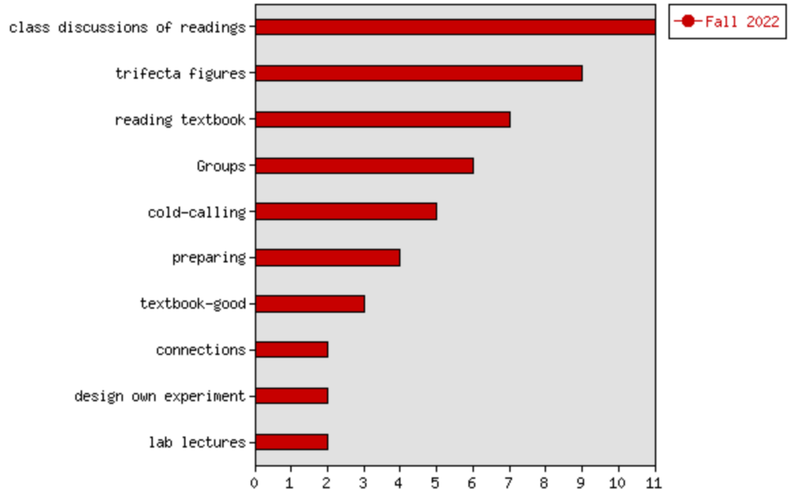
Results for Question: CONTINUE: In general, what do you think is helping you the mo in learning biology in this course?

Distribution of responses

The distribution of responses to this questions appears below.

Assign codes to these text responses

Keyword	Responses	Individual Results show
class discussions of readings	11/42 (26%)	
trifecta figures	9/42 (21%)	
reading textbook	7/42 (17%)	
Groups	6/42 (14%)	
cold-calling	5/42 (12%)	
preparing	4/42 (10%)	
textbook-good	3/42 (7%)	
connections	2/42 (5%)	
design own experiment	2/42 (5%)	
lab lectures	2/42 (5%)	
research focus	2/42 (5%)	
taking notes	2/42 (5%)	
JClubs	1/42 (2%)	
LAB	1/42 (2%)	
cold calling	1/42 (2%)	
more-lecture	1/42 (2%)	
not learning much	1/42 (2%)	
teaching myself	1/42 (2%)	
writing papers	1/42 (2%)	



Responses

“Applying biology concepts to a research project and trifecta-ing research paper figures.”

— response ID: 2645

“Cold-calling is definitely a driving factor when it comes to my learning in this course. I take time to prepare and study my notes so that I am ready for lecture. ”

— response ID: 3246

“Preparing for class by reading and taking the notes ahead of time so that we can ask questions about the material. ”

— response ID: 10793

“Doing readings and discussing them in class. J-clubs. ”

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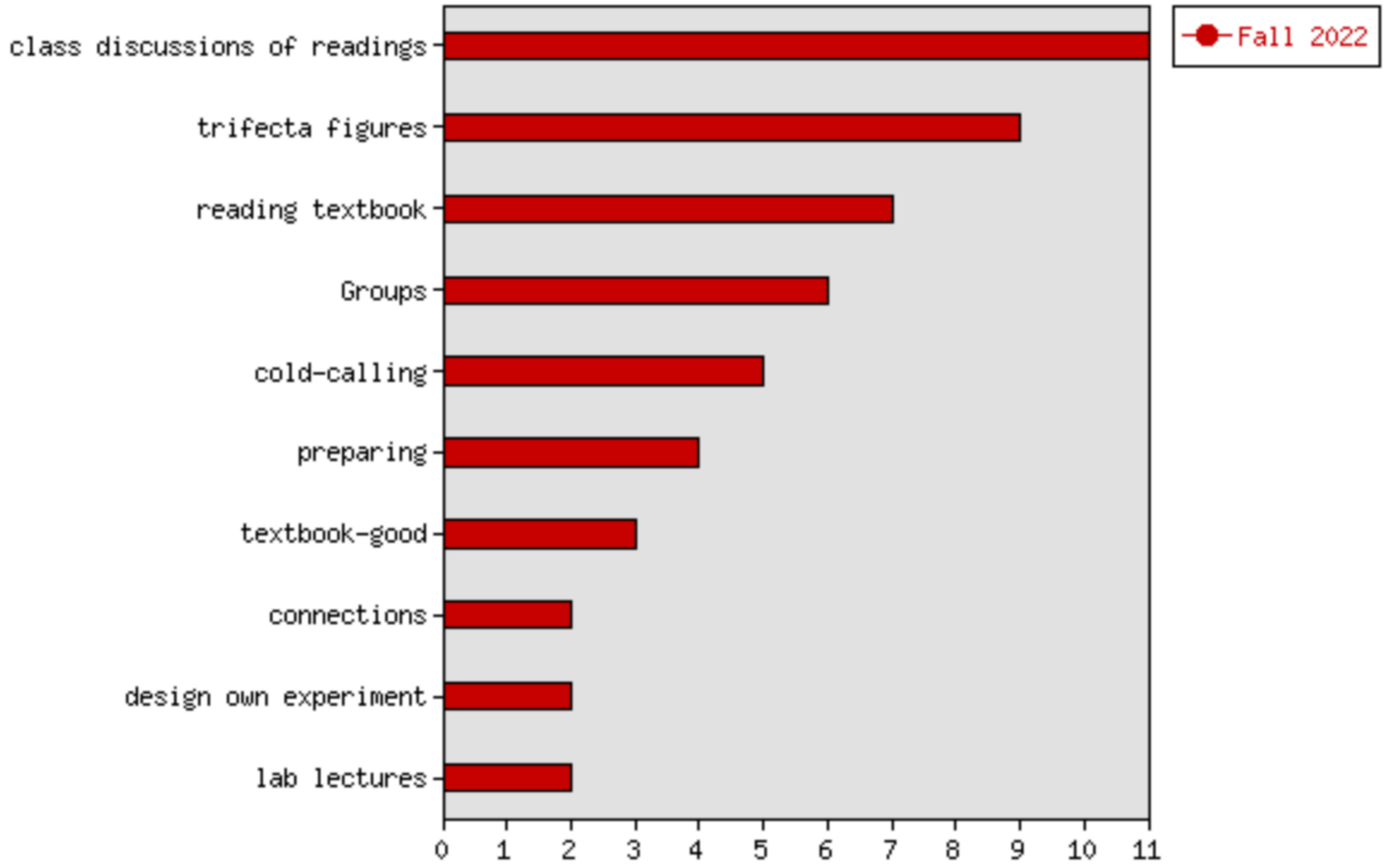

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taking notes	2/42 (5%)	
JClubs	1/42 (2%)	
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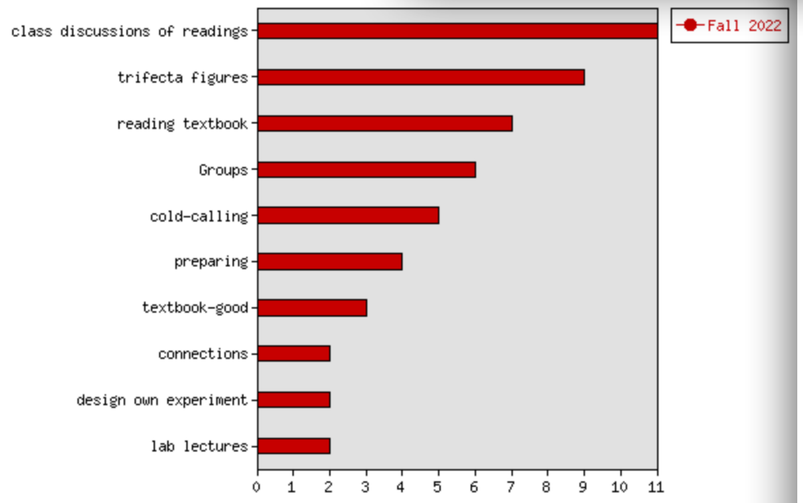

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— *response ID: 10793*

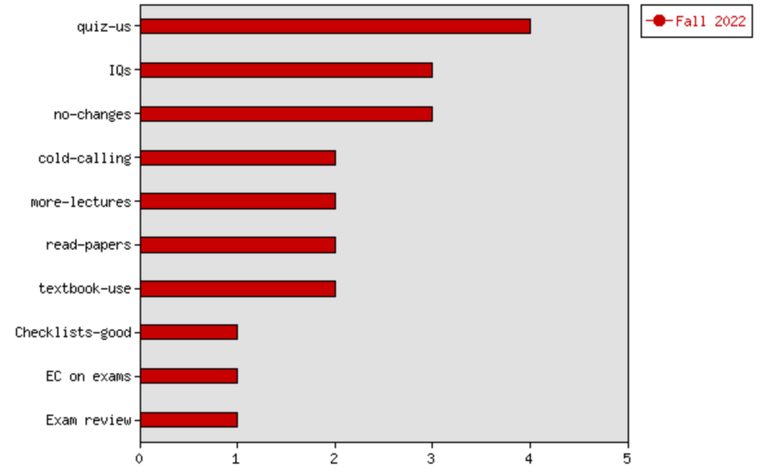
"Doing readings and discussing them in class. J-clubs. "
— *response ID: 16121*

Results for Question: START: What change or new approach do you think would help everyone challenge themselves to study and learn even more?

Distribution of responses
The distribution of responses to this questions appears below.

Assign codes to these text responses

Keyword	Responses	Individual Results show
quiz-us	4/42 (10%)	
IQs	3/42 (7%)	
no-changes	3/42 (7%)	
cold-calling	2/42 (5%)	
more-lectures	2/42 (5%)	
read-papers	2/42 (5%)	
textbook-use	2/42 (5%)	
Checklists-good	1/42 (2%)	
EC on exams	1/42 (2%)	
Exam review	1/42 (2%)	
IQs required	1/42 (2%)	
assign trifectas	1/42 (2%)	
clarify-class	1/42 (2%)	
discussion-aloud	1/42 (2%)	
grades-bad	1/42 (2%)	
more-lecture	1/42 (2%)	
note-taking	1/42 (2%)	
practice quizzes	1/42 (2%)	
prepping-works	1/42 (2%)	
teach-others	1/42 (2%)	
textbook figures-good	1/42 (2%)	
textbook research papers	1/42 (2%)	
trifectas-good	1/42 (2%)	



Responses

"Trying to teach the material to someone else while reading the material."
— *response ID: 2645*

"Taking the time to understand not only the reading, but the figures associated with the reading is crucial to understanding and studying the content. Looking in the bibliography for the research papers and reading over those is also very helpful. "
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Regular Exercise and Healthy Diet

Results for Question: CONTINUE: In general, what do you think is help in learning biology in this course?

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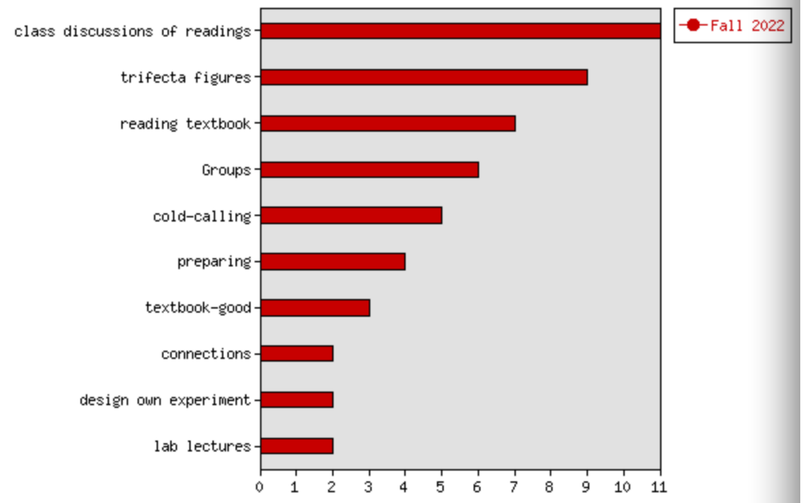

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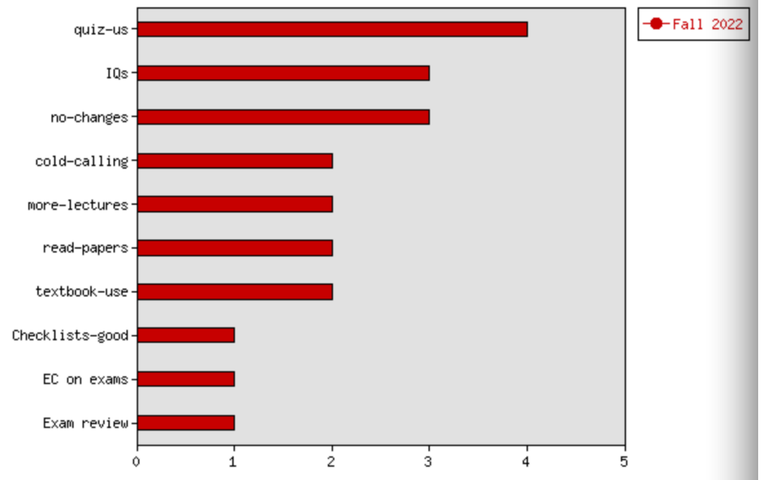
textbook-use	2/42 (5%)	
Checklists-good	1/42 (2%)	
EC on exams	1/42 (2%)	
Exam review	1/42 (2%)	
IQs required	1/42 (2%)	
assign trifectas	1/42 (2%)	
clarify-class	1/42 (2%)	
discussion-aloud	1/42 (2%)	
grades-bad	1/42 (2%)	
group quizzes	1/42 (2%)	
how to take notes	1/42 (2%)	
improve-rubrics	1/42 (2%)	
inherit grades good	1/42 (2%)	
more discussions	1/42 (2%)	
more-lecture	1/42 (2%)	
note-taking	1/42 (2%)	
practice quizzes	1/42 (2%)	
prepping-works	1/42 (2%)	
teach-others	1/42 (2%)	
textbook figures-good	1/42 (2%)	
textbook research papers	1/42 (2%)	
trifectas-good	1/42 (2%)	



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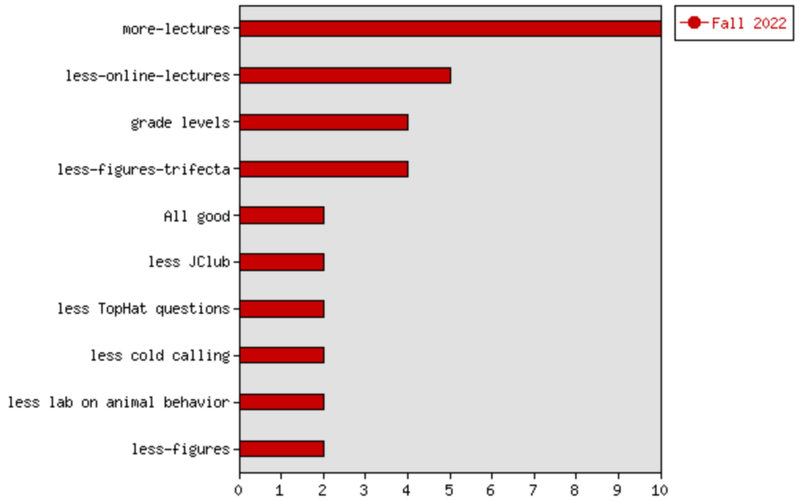
— *response ID: 3246*

Results for Question: STOP: What do you think is helping you the least in learn biology in this course?

Distribution of responses
The distribution of responses to this questions appears below.

Assign codes to these text responses

Keyword	Responses	Individual Results show
more-lectures	10/42 (24%)	
less-online-lectures	5/42 (12%)	
grade levels	4/42 (10%)	
less-figures-trifecta	4/42 (10%)	
All good	2/42 (5%)	
less JClub	2/42 (5%)	
less TopHat questions	2/42 (5%)	
less cold calling	2/42 (5%)	
less lab on animal behavior	2/42 (5%)	
less-figures	2/42 (5%)	
better exams	1/42 (2%)	
better rubrics	1/42 (2%)	
fewer info sources	1/42 (2%)	
less animal research	1/42 (2%)	
less design your experiment	1/42 (2%)	
less long readings	1/42 (2%)	
less silly activities	1/42 (2%)	
more cell biology	1/42 (2%)	
more interactive activities	1/42 (2%)	
more office hours	1/42 (2%)	
more research papers in lecture	1/42 (2%)	



Responses

"Not factoring in a traditional lecture in addition to looking at research to learn biology topics."
— *response ID: 2645*

"I think two regular lectures than reserving one lecture for journal club would be more beneficial. "
— *response ID: 3246*

"I think the online lectures because I sometimes do not know the correct answers and have to guess, but then I have to wait correct answers are released and they don't give a reasoning as to why they are correct."
— *response ID: 10793*

Measuring actual learning versus feeling of learning in response to being actively engaged in the classroom

Louis Deslauriers[a,1], Logan S. McCarty[a,b], Kelly Miller[c], Kristina Callaghan[a], and Greg Kestin[a]

[a]Department of Physics, Harvard University, Cambridge, MA 02138; [b]Department of Chemistry and Chemical Biology, Harvard University, Cambridge, MA 02138; and [c]School of Engineering and Applied Sciences, Harvard University, Cambridge, MA 02138

Edited by Kenneth W. Wachter, University of California, Berkeley, CA, and approved August 13, 2019 (received for review December 24, 2018)

We compared students' self-reported perception of learning with their actual learning under controlled conditions in large-enrollment introductory college physics courses taught using 1) active instruction (following best practices in the discipline) and 2) passive instruction (lectures by experienced and highly rated instructors). Both groups received identical class content and handouts, students were randomly assigned, and the instructor made no effort to persuade students of the benefit of either method. Students in active classrooms learned more (as would be expected based on prior research), but their perception of learning, while positive, was lower than that of their peers in passive environments. This suggests that attempts to evaluate instruction based on students' perceptions of learning could inadvertently promote inferior (passive) pedagogical methods. For instance, a superstar lecturer could create such a positive feeling of learning that students would choose those lectures over active learning. Most importantly, these results suggest that when students experience the increased cognitive effort associated with active learning, they initially take that effort to signify poorer learning. That disconnect may have a detrimental effect on students' motivation, engagement, and ability to self-regulate their own learning. Although students can, on their own, discover the increased value of being actively engaged during a semester-long course, their learning may be impaired during the initial part of the course. We discuss

with the material. There is nothing known about how students naturally react to active learning without any promotion from the instructor. In addition, previous studies used different course materials for active versus passive instruction, potentially confounding the effect of pedagogy with that of course materials.

In this report, we identify an inherent student bias against active learning that can limit its effectiveness and may hinder the wide adoption of these methods. Compared with students in traditional lectures, students in active classes perceived that they learned less, while in reality they learned more. Students rated the quality of instruction in passive lectures more highly, and they expressed a preference to have "all of their physics classes taught this way," even though their scores on independent tests of learning were lower than those in actively taught classrooms. These findings are consistent with the observations that novices in a subject are poor judges of their own competence (27–29), and the cognitive fluency of lectures can be misleading (30, 31). Our findings also suggest that novice students may not accurately assess the changes in their own learning that follow from their experience in a class. These misperceptions must be understood and addressed in order for research-based active instructional strategies to be more effective and to become widespread.

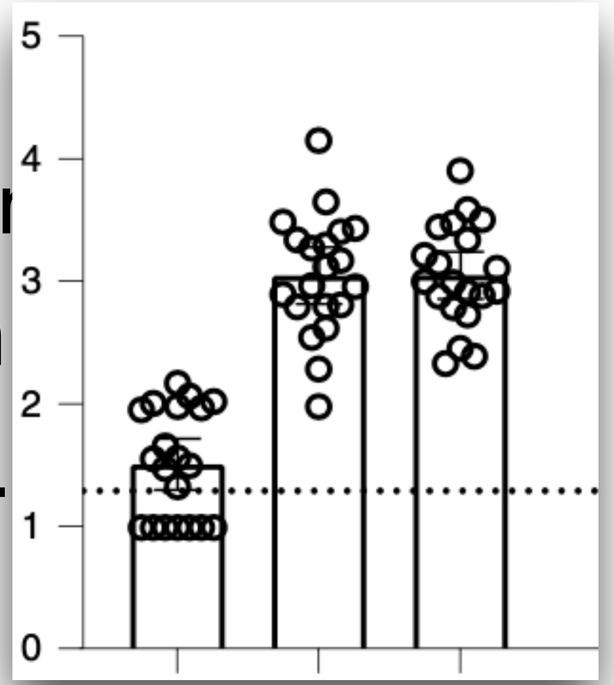
Materials and Methods

Announcements

- **Prof Interviews** are going pretty well, particularly once students relax a little and “think aloud”.

You voted for:

- Final lab period is Tuesday of week 14
- Final paper is due Thursday week 14 (5pr
- Final exam #1 is Wednesday week 15 (in
- Final Paper: No Discussion, *No statistics*.



Prepare Paper “Structure” “Function”

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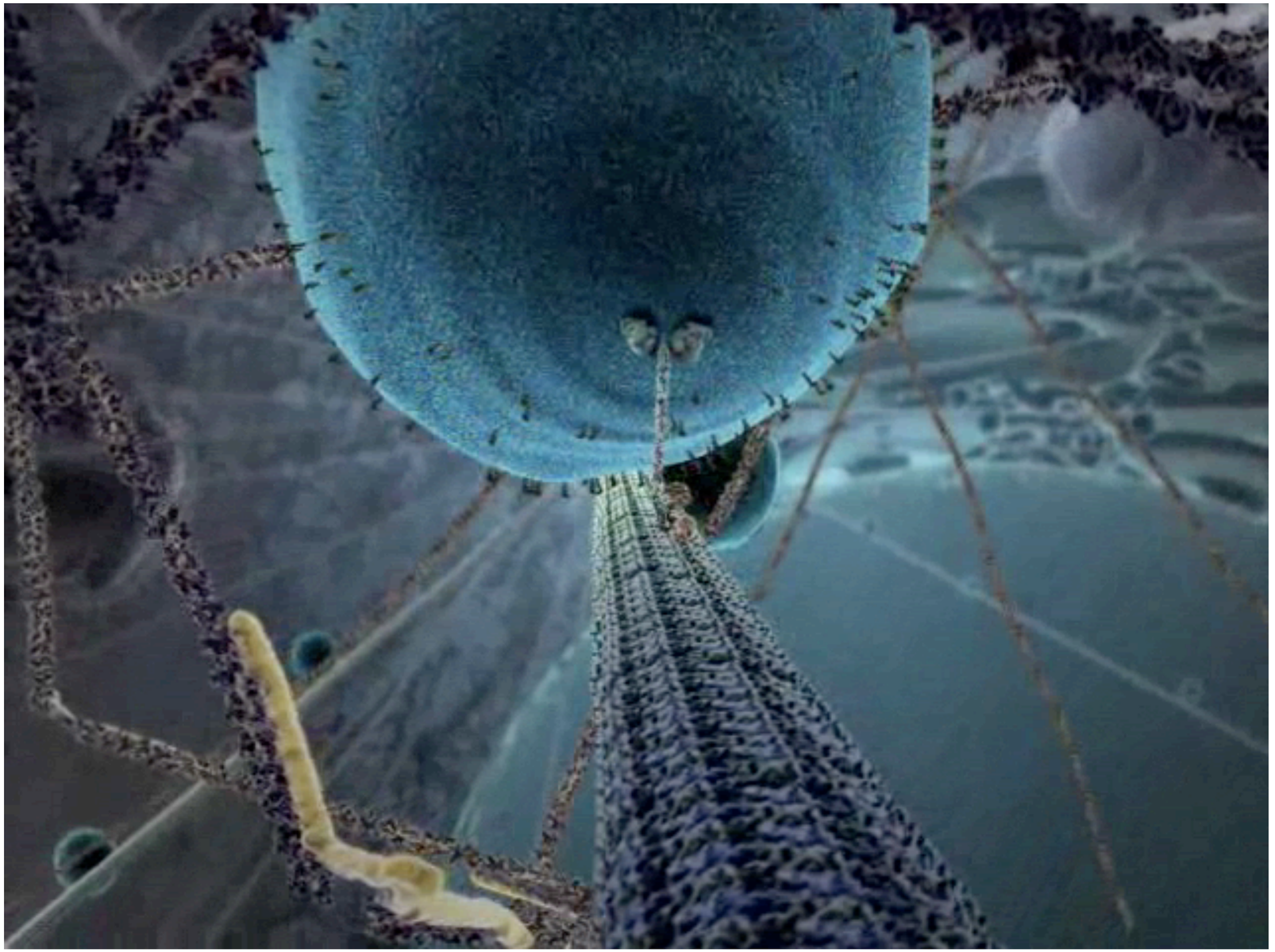


What do you want to do next?

A. The reading: Review DNA structure research (15min)
B. Today's reading: Talk about ELSI (10 min)
C. NASA: Watch last night's ARTEMIS rocket launch (10min)
D. Xmas shopping: What's on Kaitlyn's list (good gifts)! (5min)
E. Mindful breathing: Mediation, relieve stress (3min)
F. Let's do a few clicker questions on today's reading (5min)
G. Vote on what will be on Final Exam (5 min)
H. Take questions about Final paper (10 min)

The "Draft1" final paper

What will I have to do?
You will take full responsibility for generating a specific section(s) to create your group's final paper.

The "Draft1" paper your group submits will include: Title page, Abstract, Introduction, Methods, Results, Figures, and References sections (in the APPENDIX you just need to provide your graded Half-Draft so we can compare your original version to this one).

Use PIDs not names to indicate who was responsible for each section of the manuscript. But please do *NOT* keep PIDs associated with each and every paragraph of sections, follow authorship used by the student sample paper in the Course Pack.

Each student's grade is based 50% on their individual sections' score, 50% on the final whole paper score. The relevant sections of DRAFT1 rubric will grade the final paper (pts scaled up to 60).

Group of 5:
PID- responsible for authoring/revising all FIGURES.

PEDE- responsible for authoring/revising METHODS.

DRG- responsible for authoring/revising RESULTS

LTP- responsible for authoring/revising INTRODUCTION and REFEREN

SC- responsible for authoring/revising TITLE PAGE and ABSTRACT.

Group of 4: Group works together to build one great ABSTRACT

PID- responsible for authoring/revising all FIGURES.

PEDE- responsible for authoring/revising METHODS.

DRG- responsible for authoring/revising RESULTS

LTP- responsible for authoring/revising TITLE PAGE, INTRODUCTION REFERENCES.

Group of 3: Group works together to build one great ABSTRACT

PEDE- responsible for authoring/revising METHODS.

DRG- responsible for authoring/revising RESULTS and FIGURES.

LTP- responsible for authoring/revising TITLE PAGE, INTRODUCTION REFERENCES.

The "Draft1" final paper

What will I have to do?
You will take full responsibility for generating a specific section(s) to create your group's final paper.

The "Draft1" paper your group submits will include: Title page, Abstract, Introduction, Methods, Re
sections (in the APPENDIX you just
Half-Draft so we can compare your

Use PIDs not names to indicate whc
section of the manuscript. But please do "NOT" keep PIDs associated with each and every paragraph of sections, follow authorship used by the student sample paper in the Course Pack.

Each student's grade is based 50% on their individual sections' score, 50% on the final whole paper score. The relevant sections of DRAFT1 rubric will grade the final paper (pts scaled up to 60).

Group of 5:
PID- responsible for authoring/revising all FIGURES.

PEDE- responsible for authoring/revising METHODS.

DRG- responsible for authoring/revising RESULTS

LTP- responsible for authoring/revising INTRODUCTION and REFEREN

SC- responsible for authoring/revising TITLE PAGE and ABSTRACT.

Group works together to build one great ABSTRACT

sible for authoring/revising all FIGURES.

nsible for authoring/revising METHODS.

sible for authoring/revising RESULTS

LTP- responsible for authoring/revising TITLE PAGE, INTRODUCTION REFERENCES.

Group of 3: Group works together to build one great ABSTRACT

PEDE- responsible for authoring/revising METHODS.

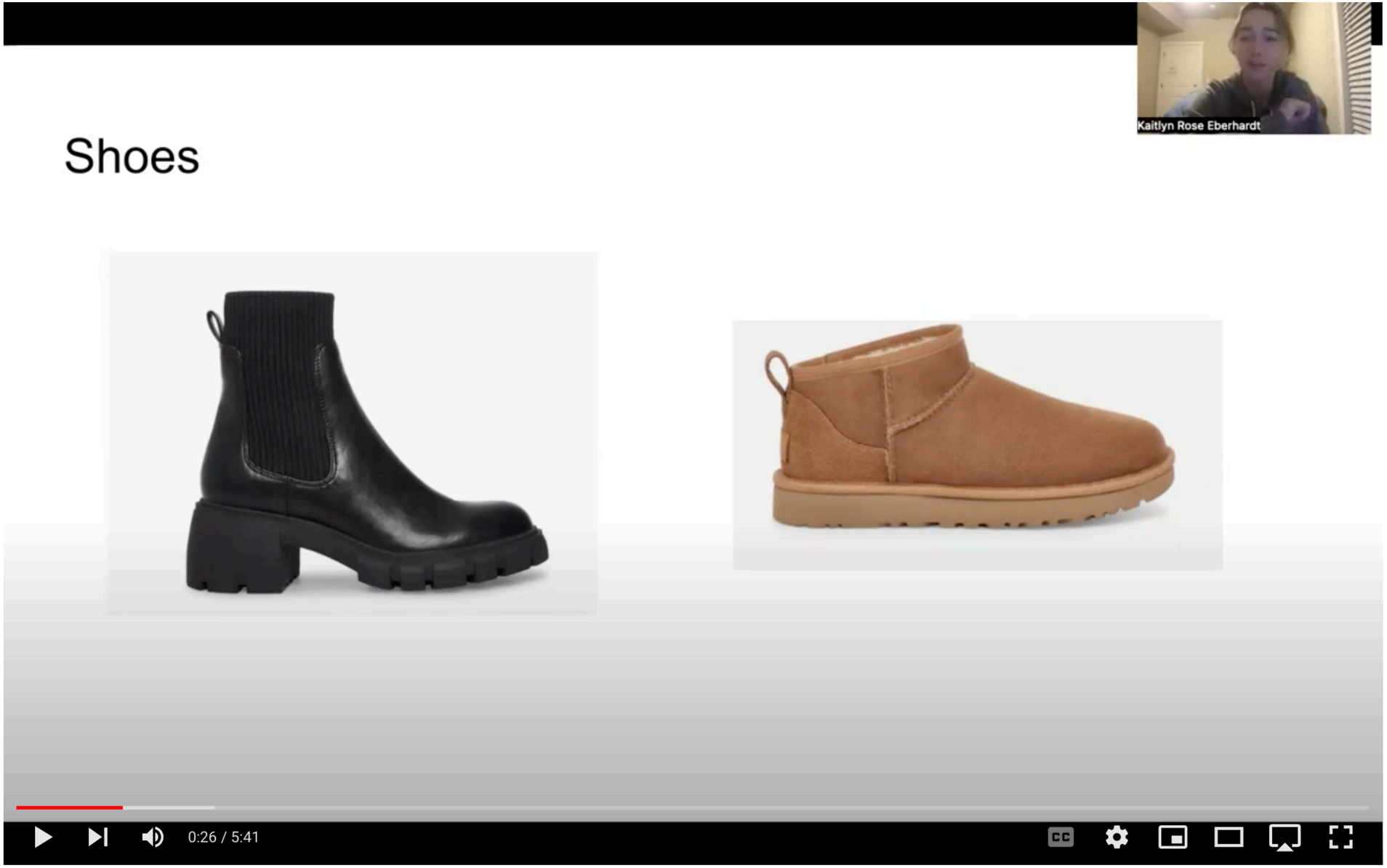
DRG- responsible for authoring/revising RESULTS and FIGURES.

LTP- responsible for authoring/revising TITLE PAGE, INTRODUCTION REFERENCES.

What do you want to do next?

A. The reading: Review DNA structure research (15min)
B. Today's reading: Talk about ELSI (10 min)
C. NASA: Watch last night's ARTEMIS rocket launch (10min)
D. Xmas shopping: What's on Kaitlyn's list (good gifts)! (5min)
E. Mindful breathing: Mediation, relieve stress (3min)
F. Let's do a few clicker questions on today's reading (5min)
G. Vote on what will be on Final Exam (5 min)
H. Take questions about Final paper (10 min)

https://youtu.be/ygZKvRDT1iI



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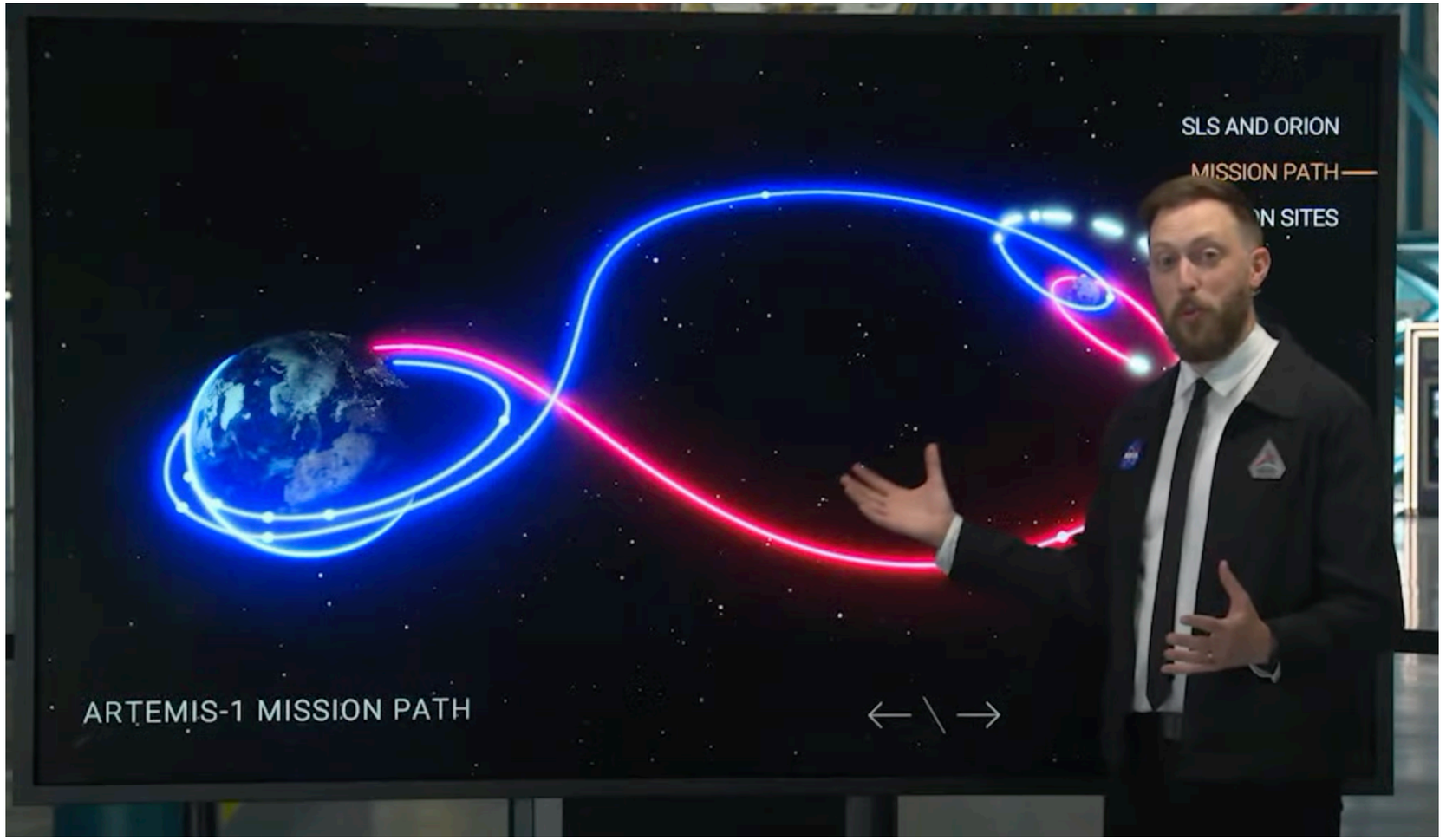
H. Take questions about Final paper (10 min)


ARTEMIS


ARTEMIS


Life Sciences Glovebox (LSG)


ARTEMIS I
MAKING HISTORY

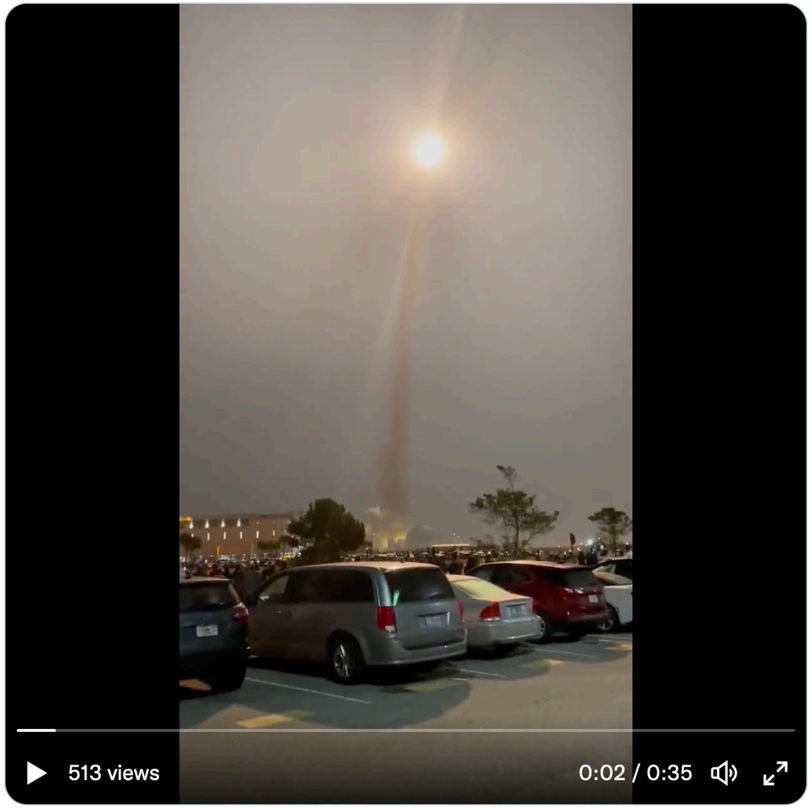


https://youtu.be/5oeJJDGJQiM?t=857

← **Tweet**

Omar ✈️
@izqomar

#Artemis



1:56 AM · Nov 16, 2022 · Twitter for iPhone

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https://twitter.com/izqomar/status/1592773637685530624?ref_src=twsrc^tfw|twcamp^tweetembed|twterm^1592773637685530624|twgr^496d3610347e12716719700dd472acf5efcec8a8|twcon^s1_&ref_url=https://www.clickorlando.com/news/local/2022/11/16/people-across-central-florida-share-images-video-of-the-artemis-i-rocket-launch/

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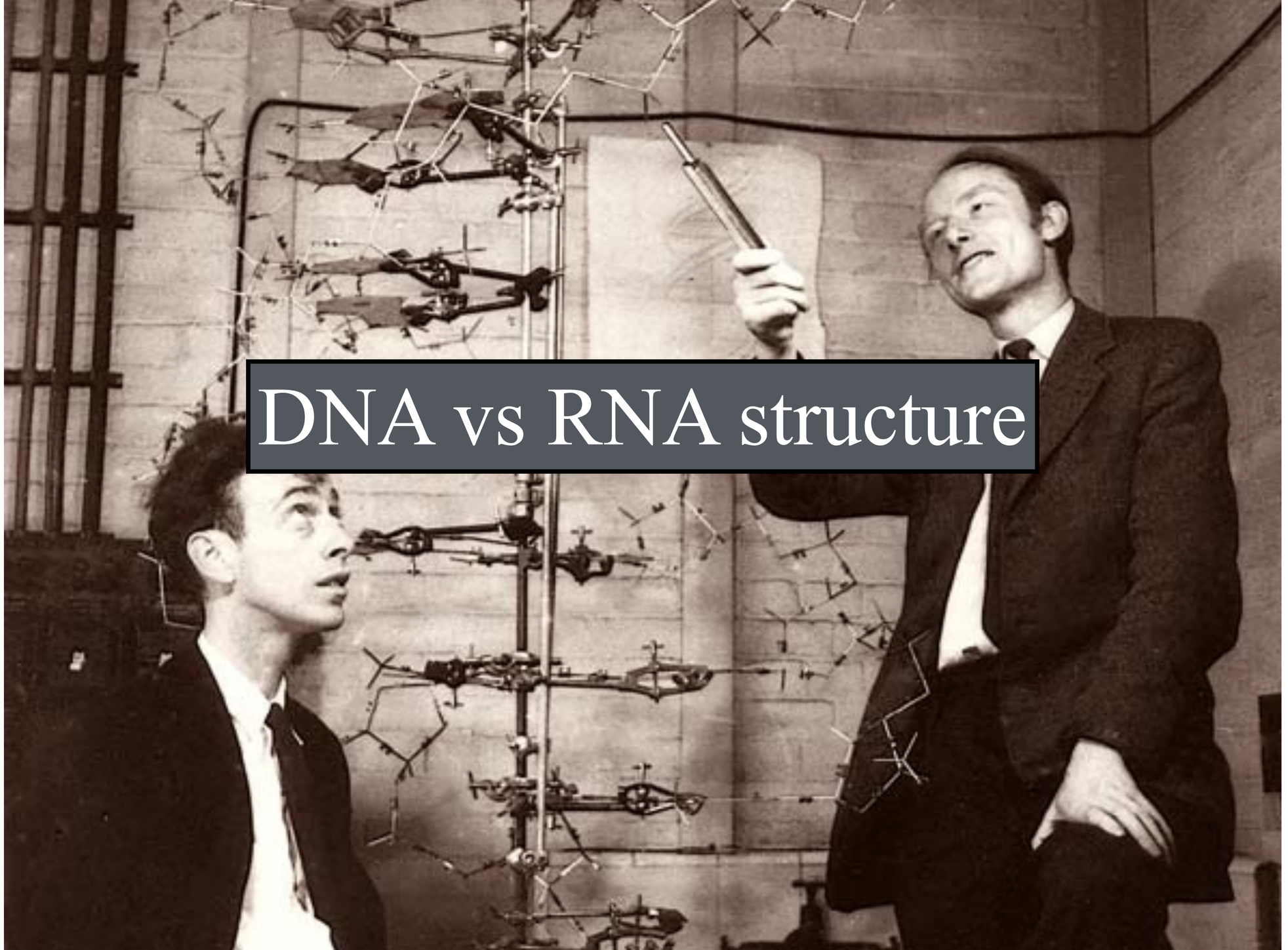
F. Let's do a few clicker questions on today's reading (5min)
G. Vote on what will be on Final Exam (5 min)
H. Take questions about Final paper (10 min)

1.4 How does DNA's shape affect its function?

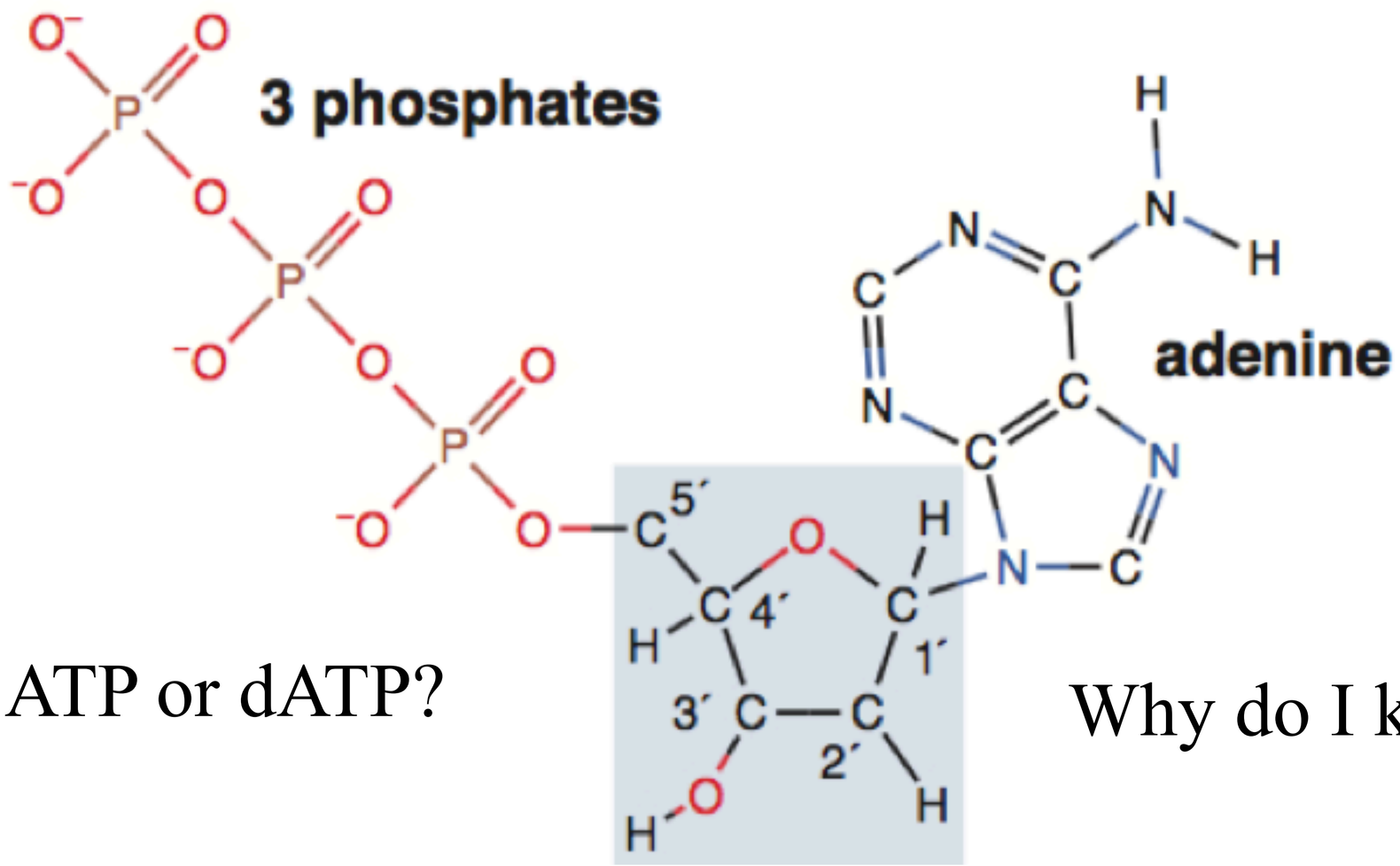
Biology Learning Objectives

- Draw the structure of DNA showing the double helix and base pairings.
- Evaluate experimental design and analyze data from research on DNA as molecular information.



DNA vs RNA structure

Nucleotide Structures

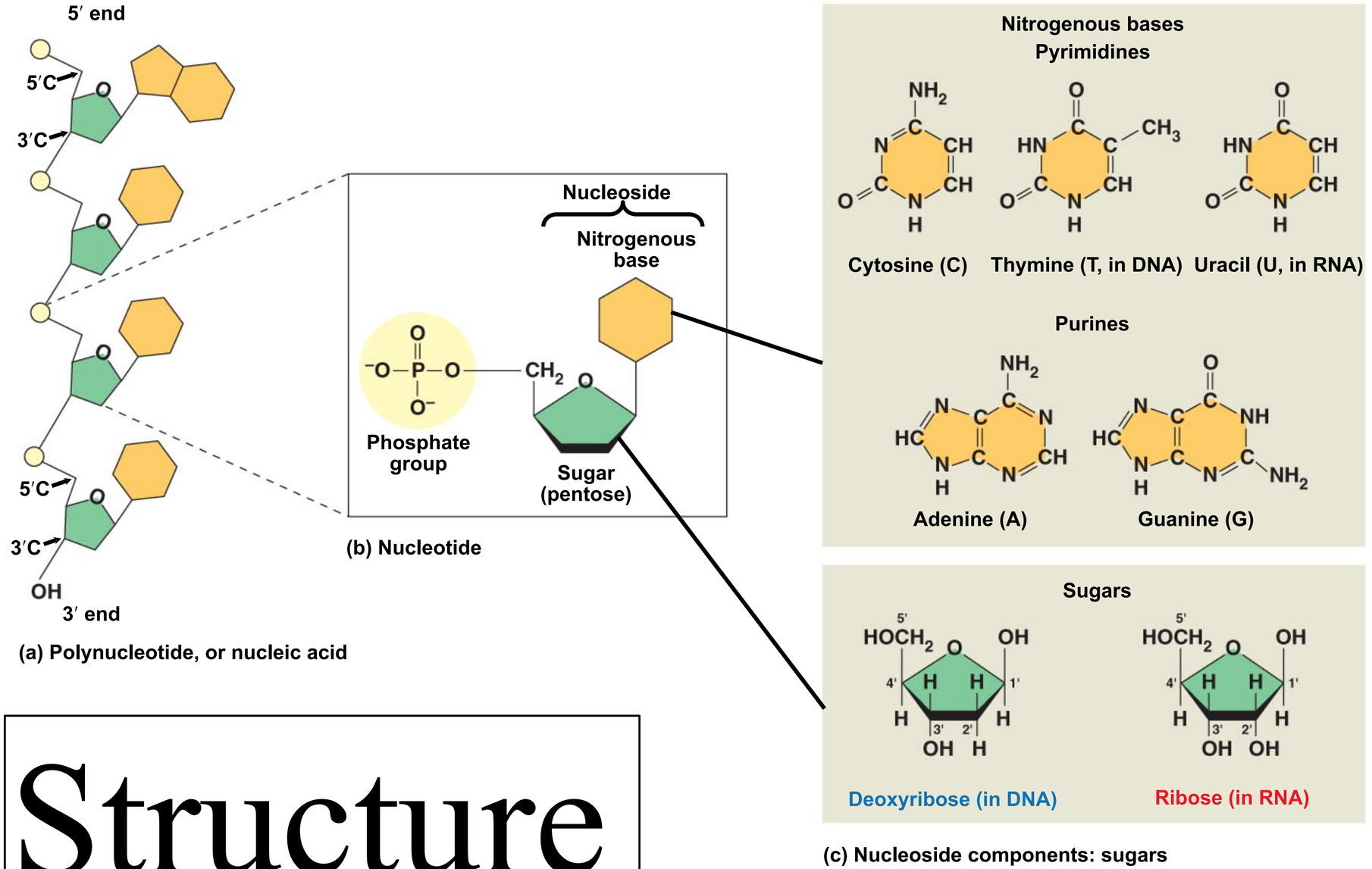


ATP or dATP?

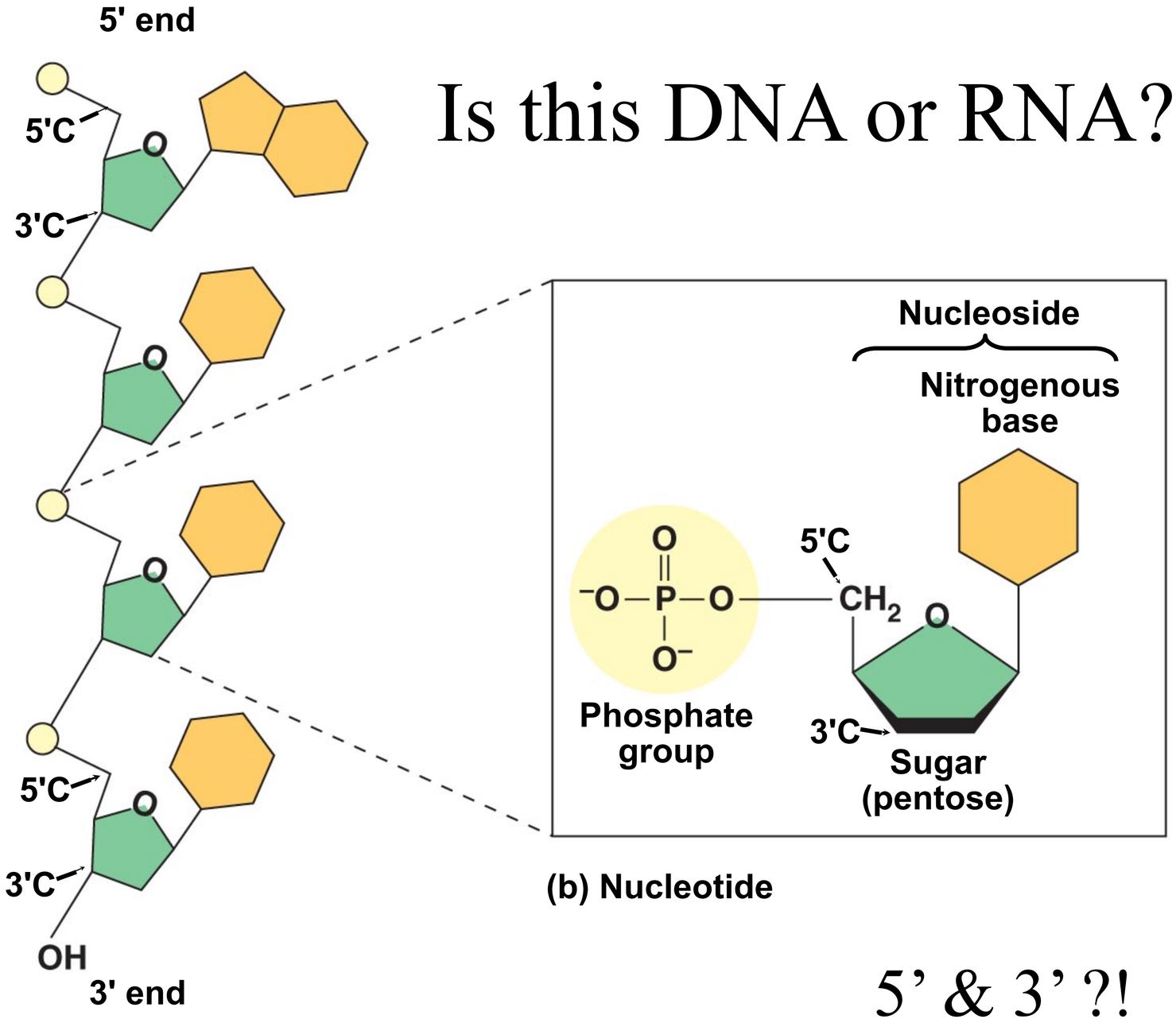
Why do I know 5’ & 3’?

Fig. 1.9

Structure

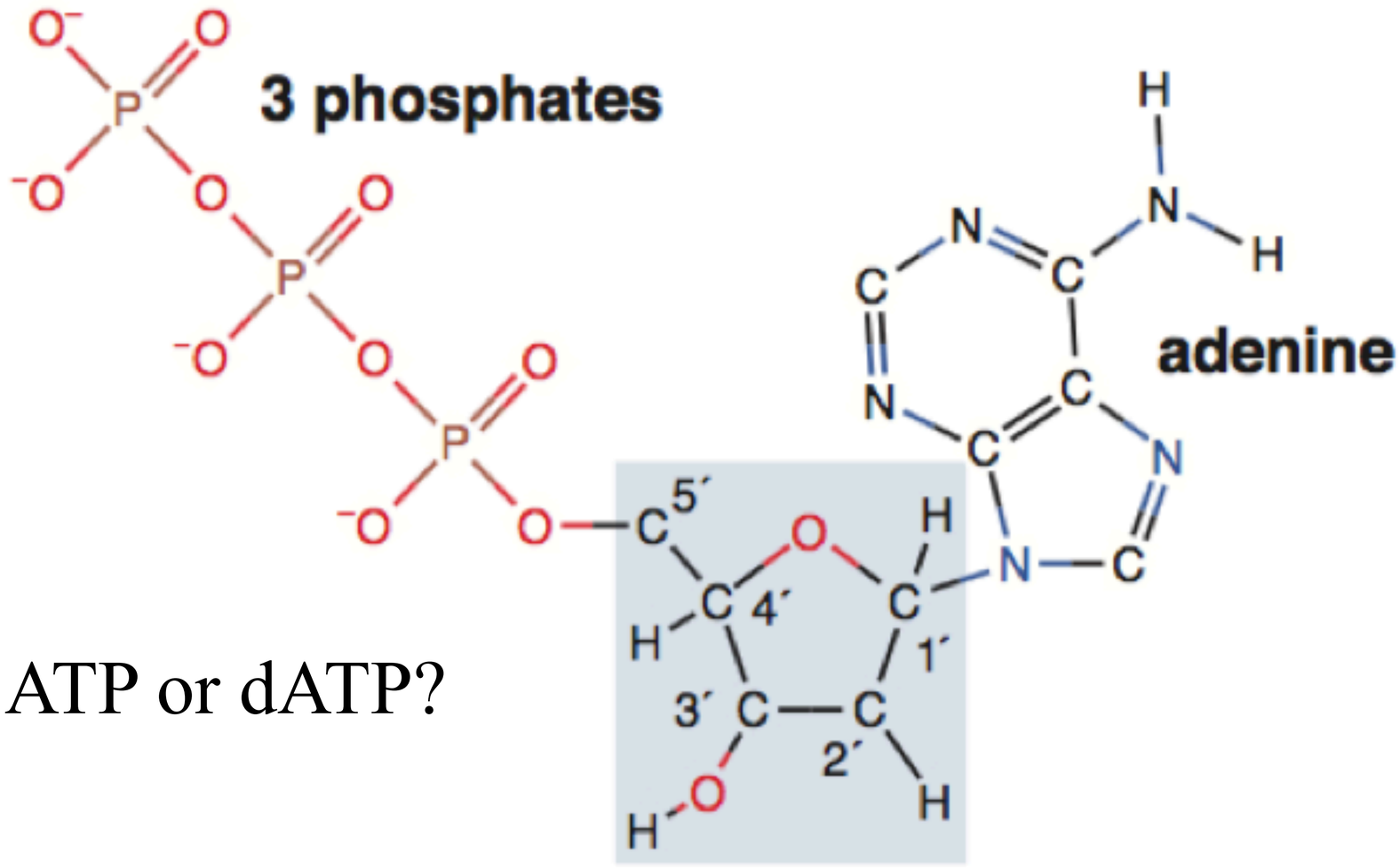

5′ end
5′C
3′C
3′ end
(a) Polynucleotide, or nucleic acid
Nucleoside
Nitrogenous base
Phosphate group
Sugar (pentose)
(b) Nucleotide
Nitrogenous bases
Pyrimidines
Cytosine (C)
Thymine (T, in DNA)
Uracil (U, in RNA)
Purines
Adenine (A)
Guanine (G)
Sugars
Deoxyribose (in DNA)
Ribose (in RNA)
(c) Nucleoside components: sugars

Is this DNA or RNA?



5’ & 3’ ?!

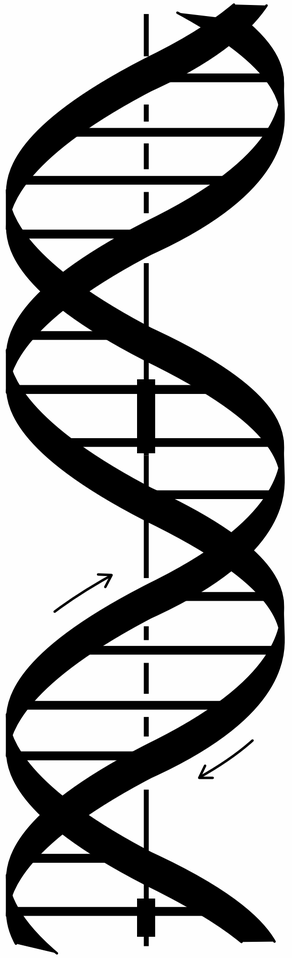
Nucleotide Structures



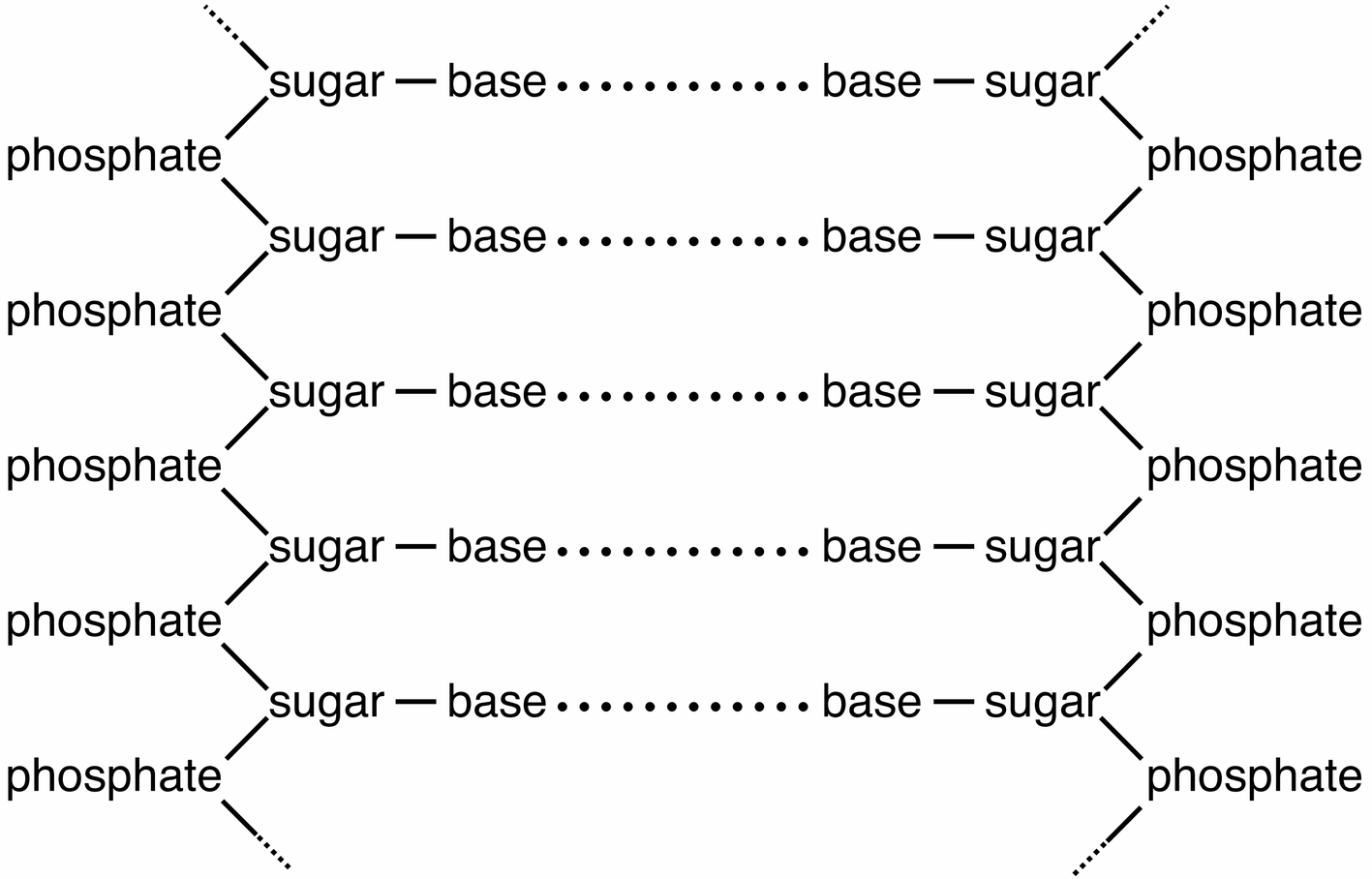
ATP or dATP?

Fig. 1.9

Watson and Crick DNA Model



A



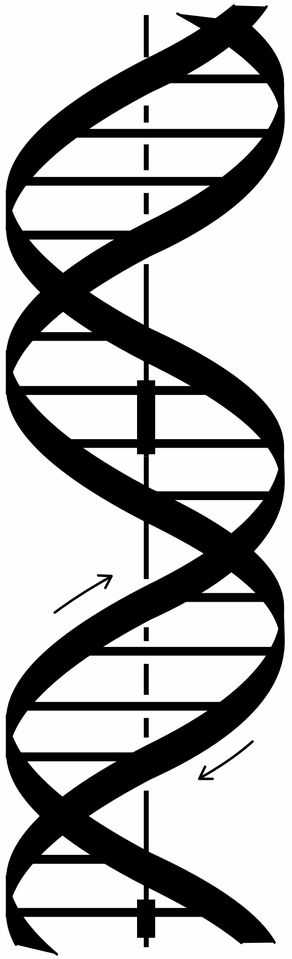
B

Can you spot their error?

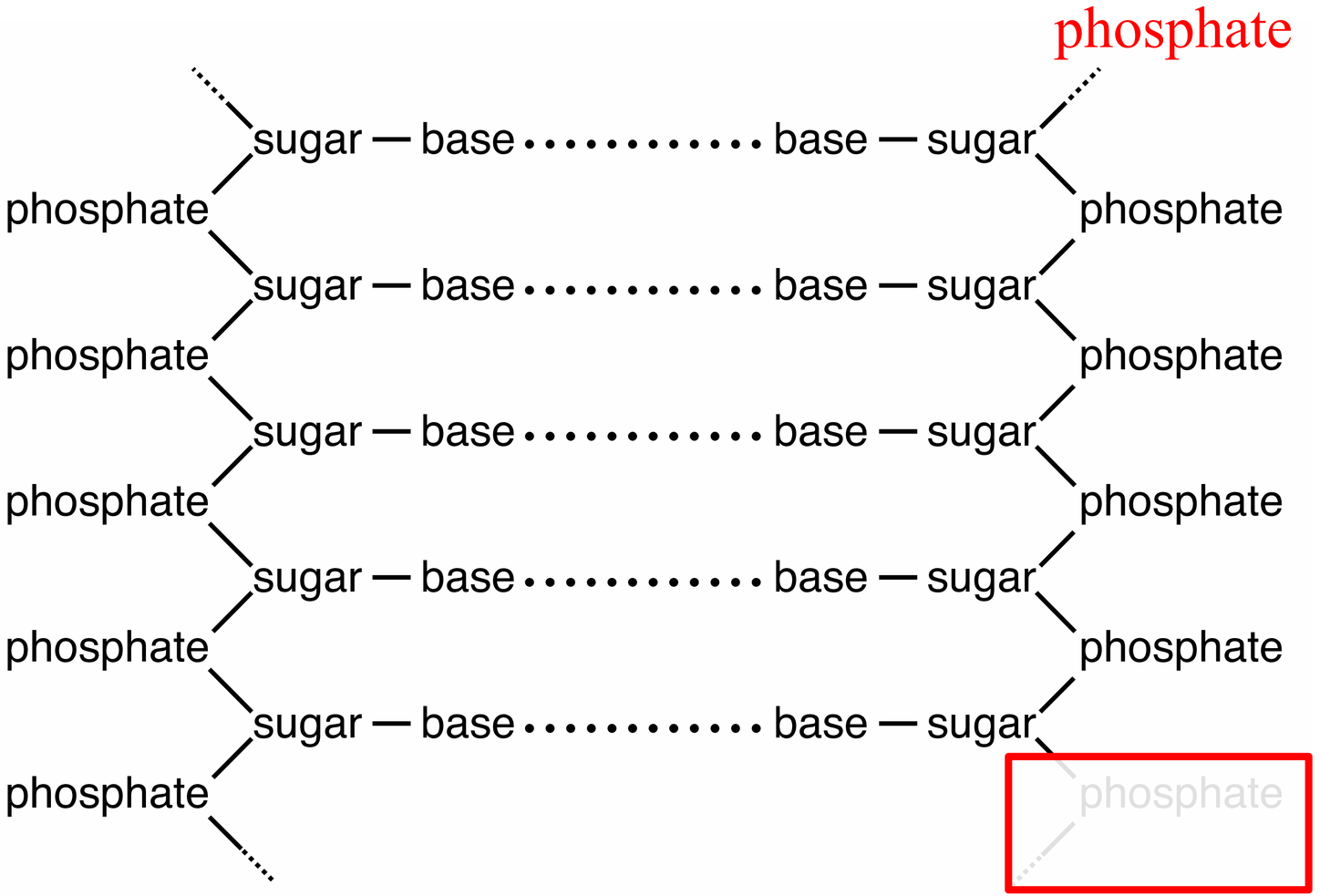
Fig. 1.10

from Watson and Crick, 1953

Watson and Crick DNA Model



A



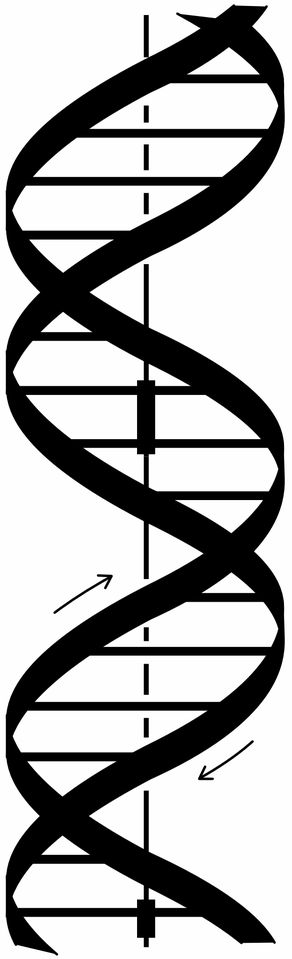
B

should be anti-parallel strands

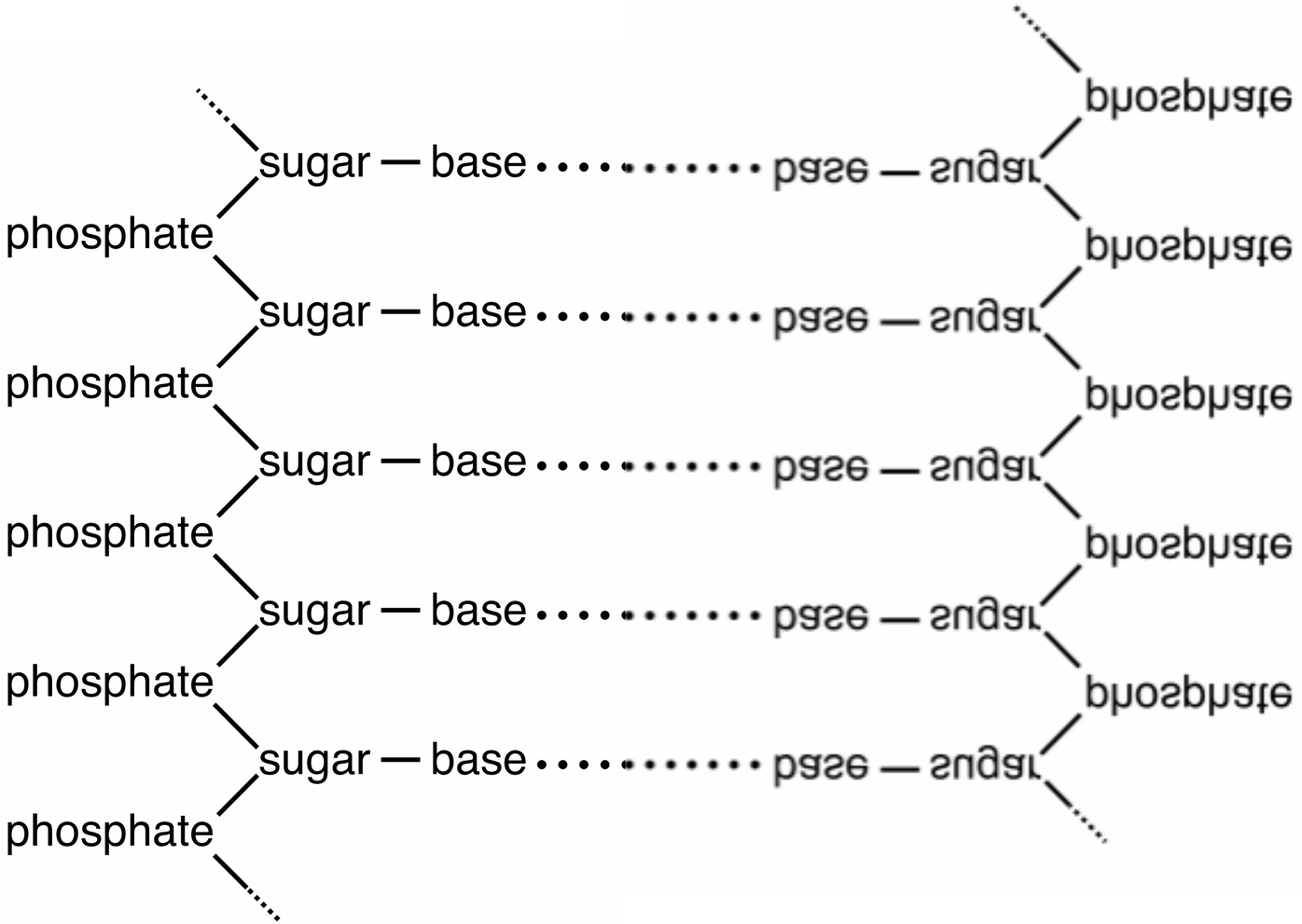
Fig. 1.10

from Watson and Crick, 1953

Watson and Crick DNA Model



A



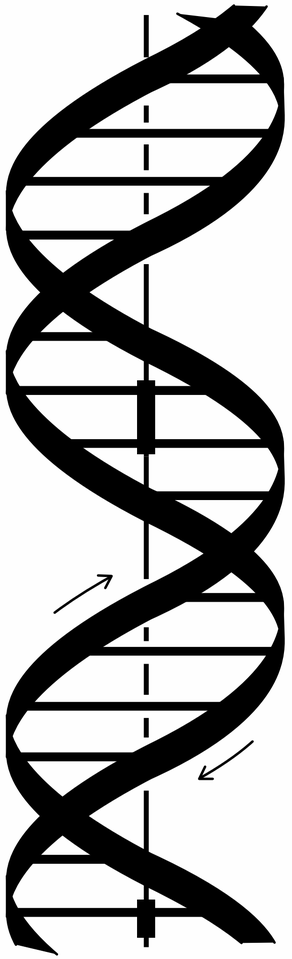
B

should be anti-parallel strands

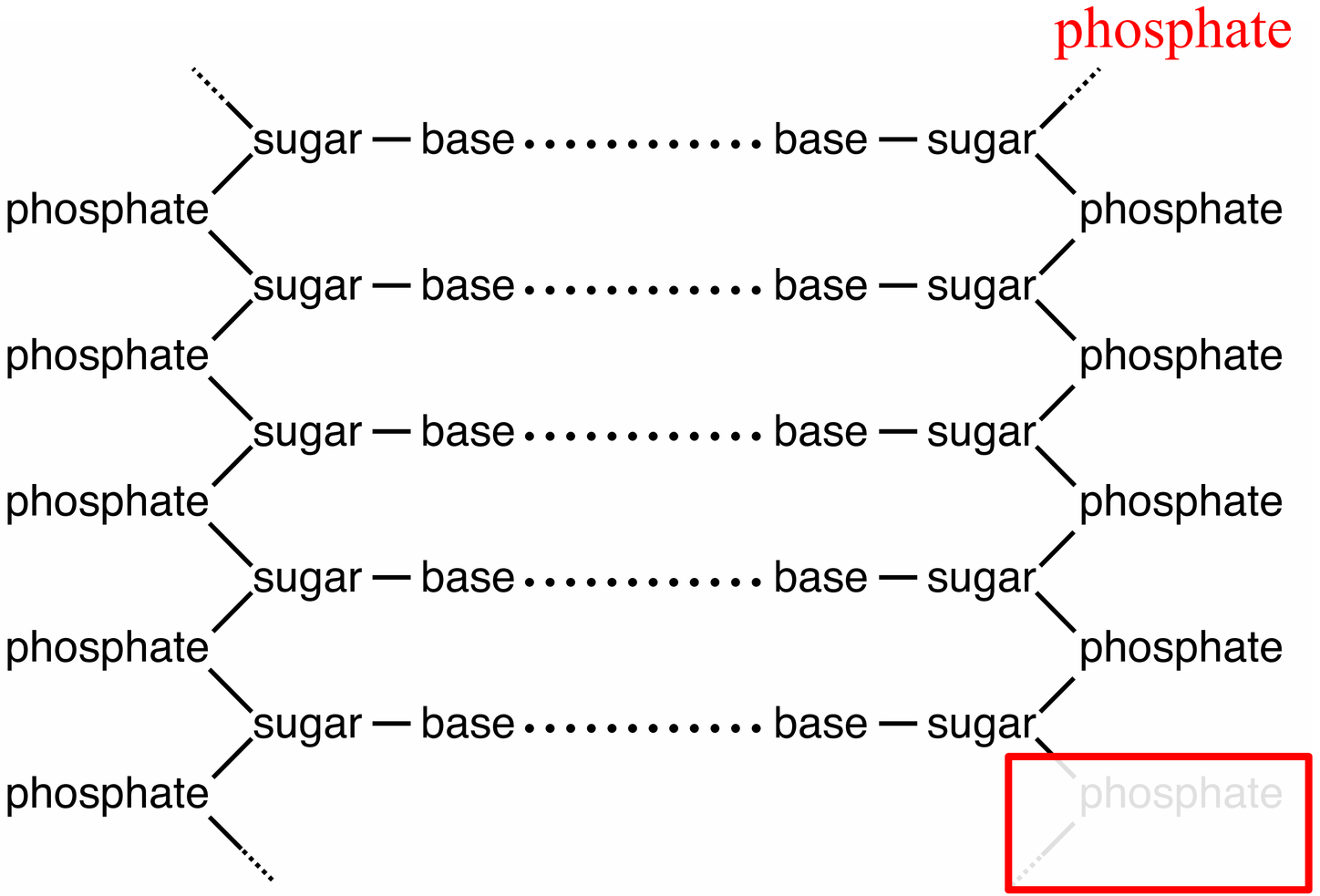
Fig. 1.10

from Watson and Crick, 1953

Watson and Crick DNA Model



A



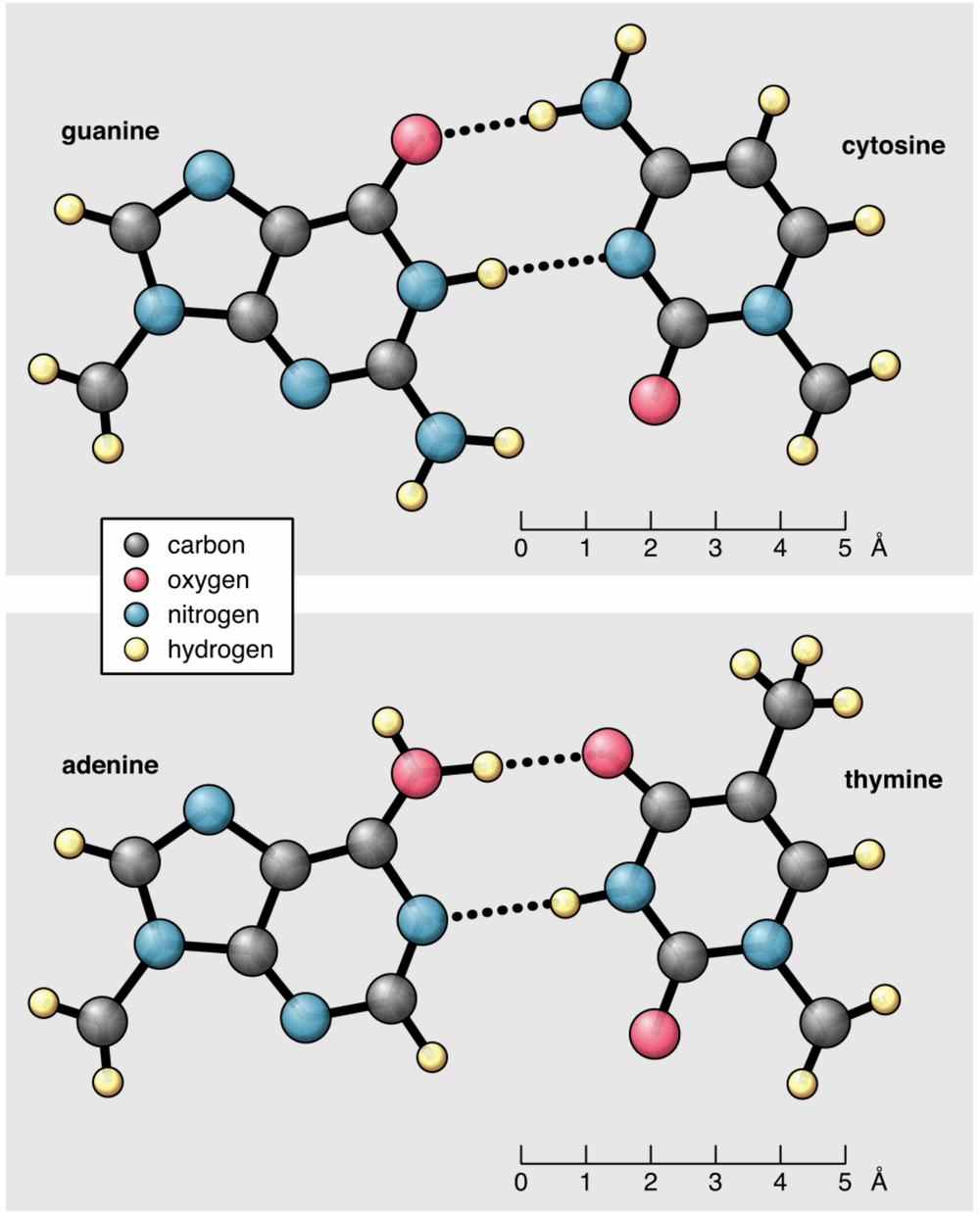
B

should be anti-parallel strands

Fig. 1.10

from Watson and Crick, 1953

IQs What's interesting about this famous image?

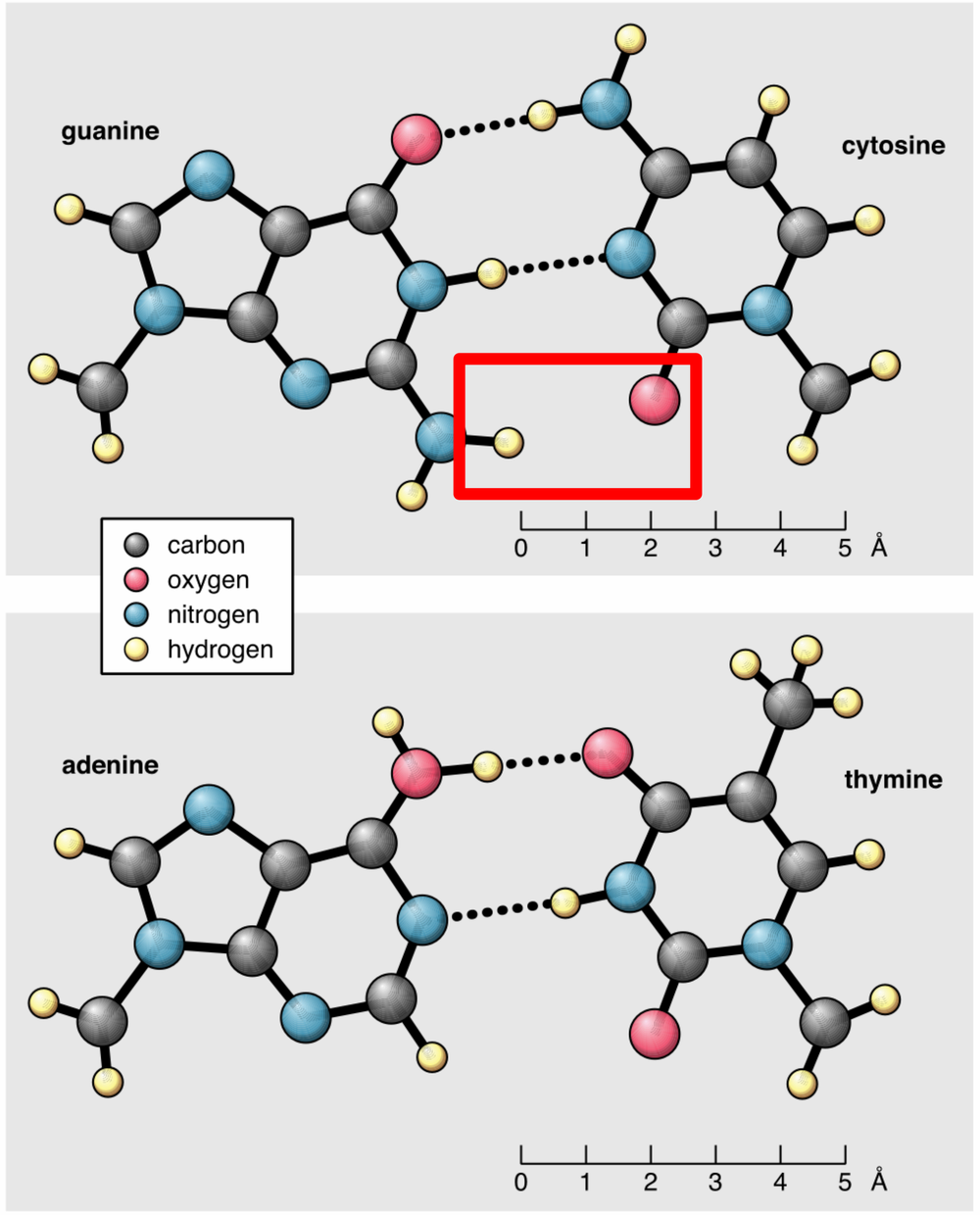


Find their mistake.

Fig. 1.13

modified from
Watson and Crick. 1953b

Watson & Crick Base Pairs

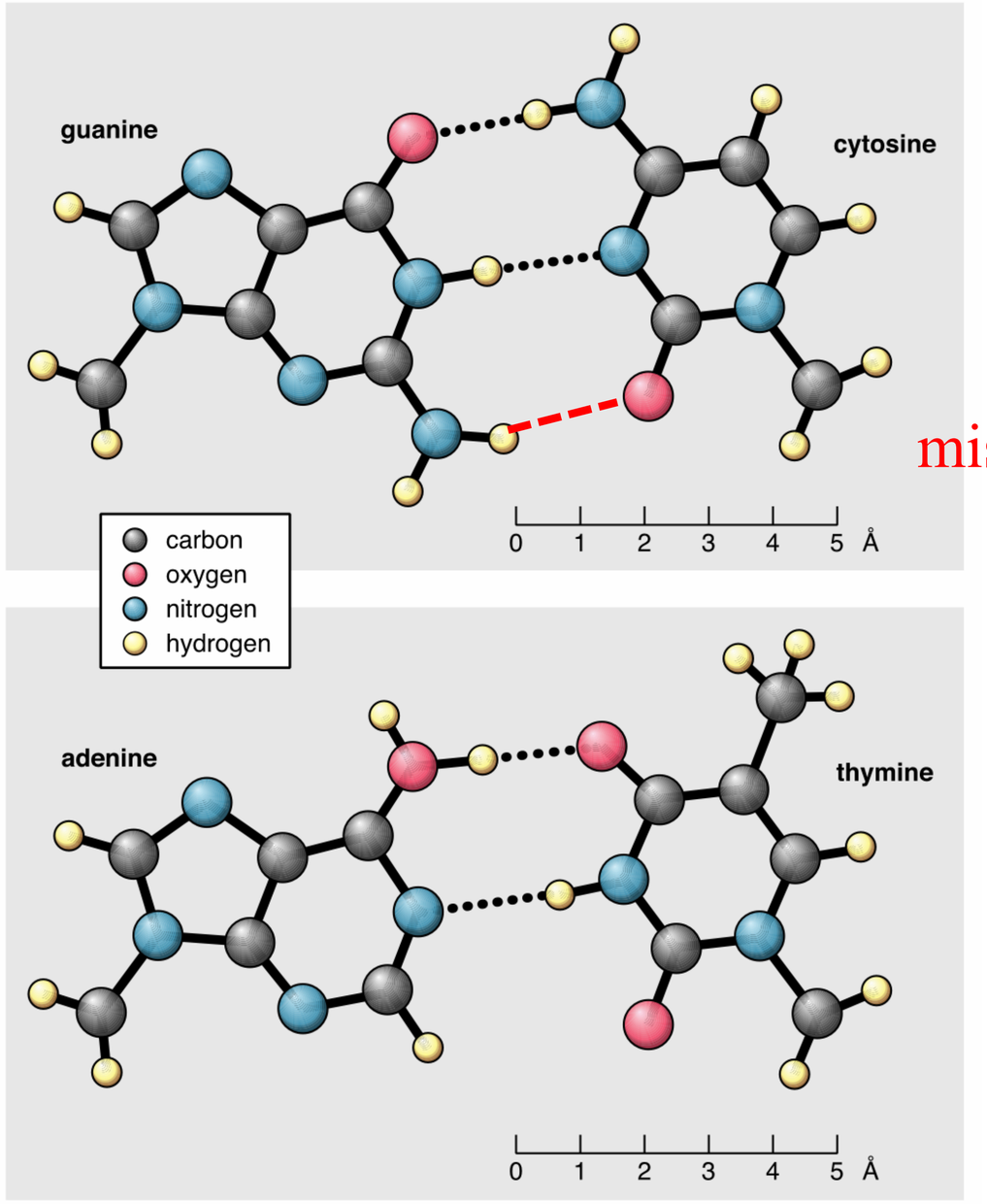


Find their mistake.

Fig. 1.13

modified from
Watson and Crick. 1953b

Watson & Crick Base Pairs



missed H-bond

Fig. 1.13

modified from
Watson and Crick. 1953b

Watson & Crick Base Pairs

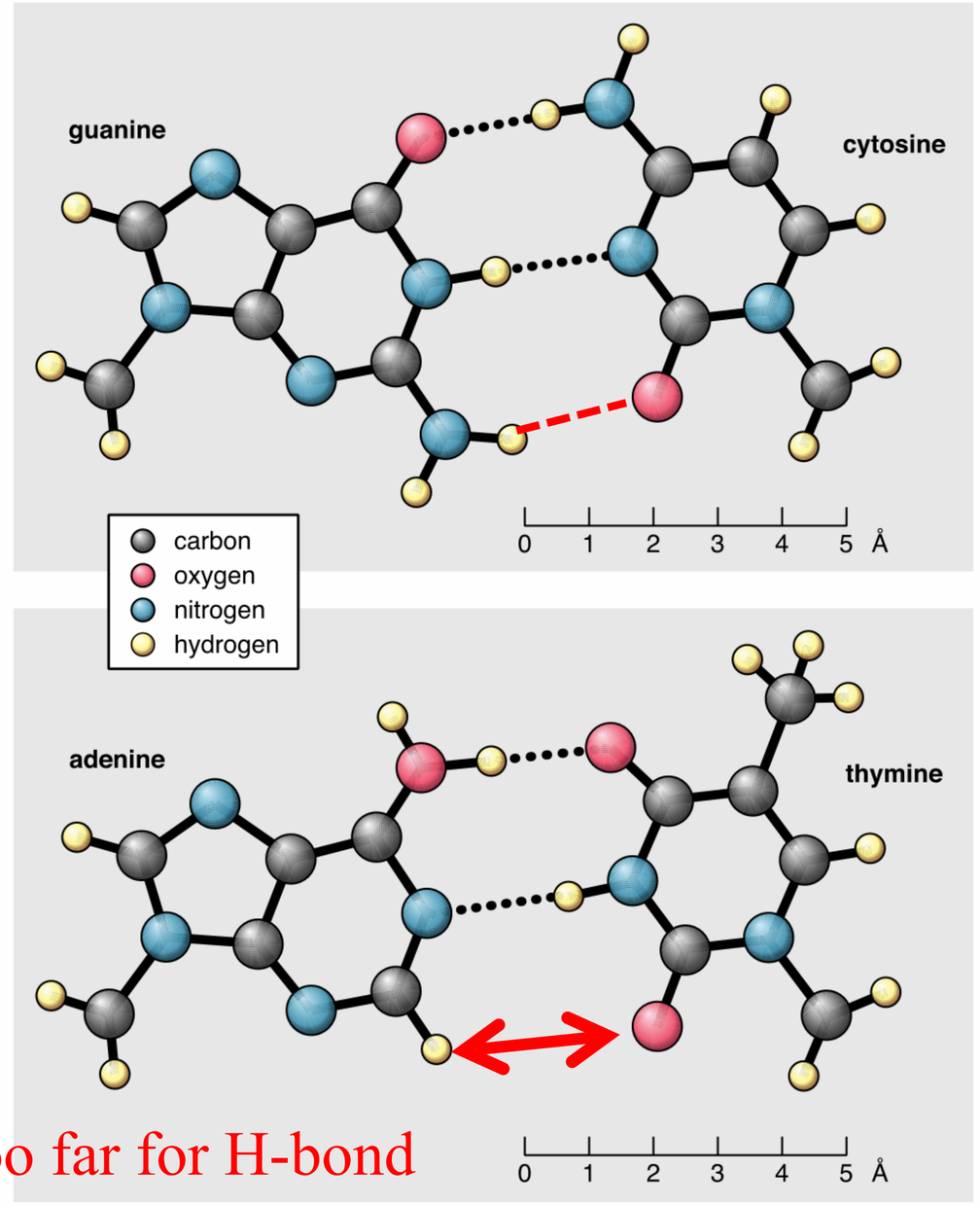
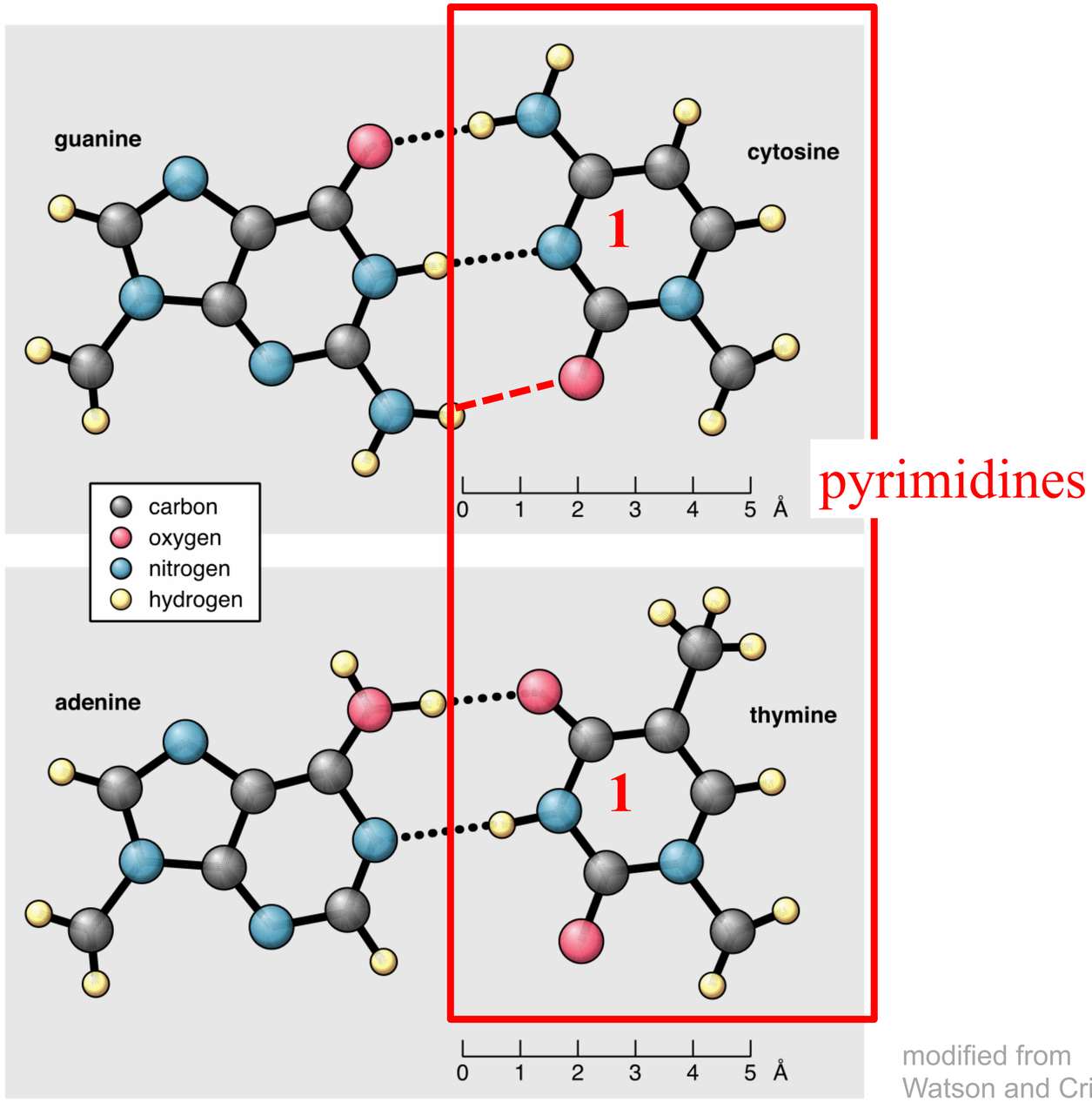


Fig. 1.13

modified from
Watson and Crick. 1953b

Watson & Crick Base Pairs

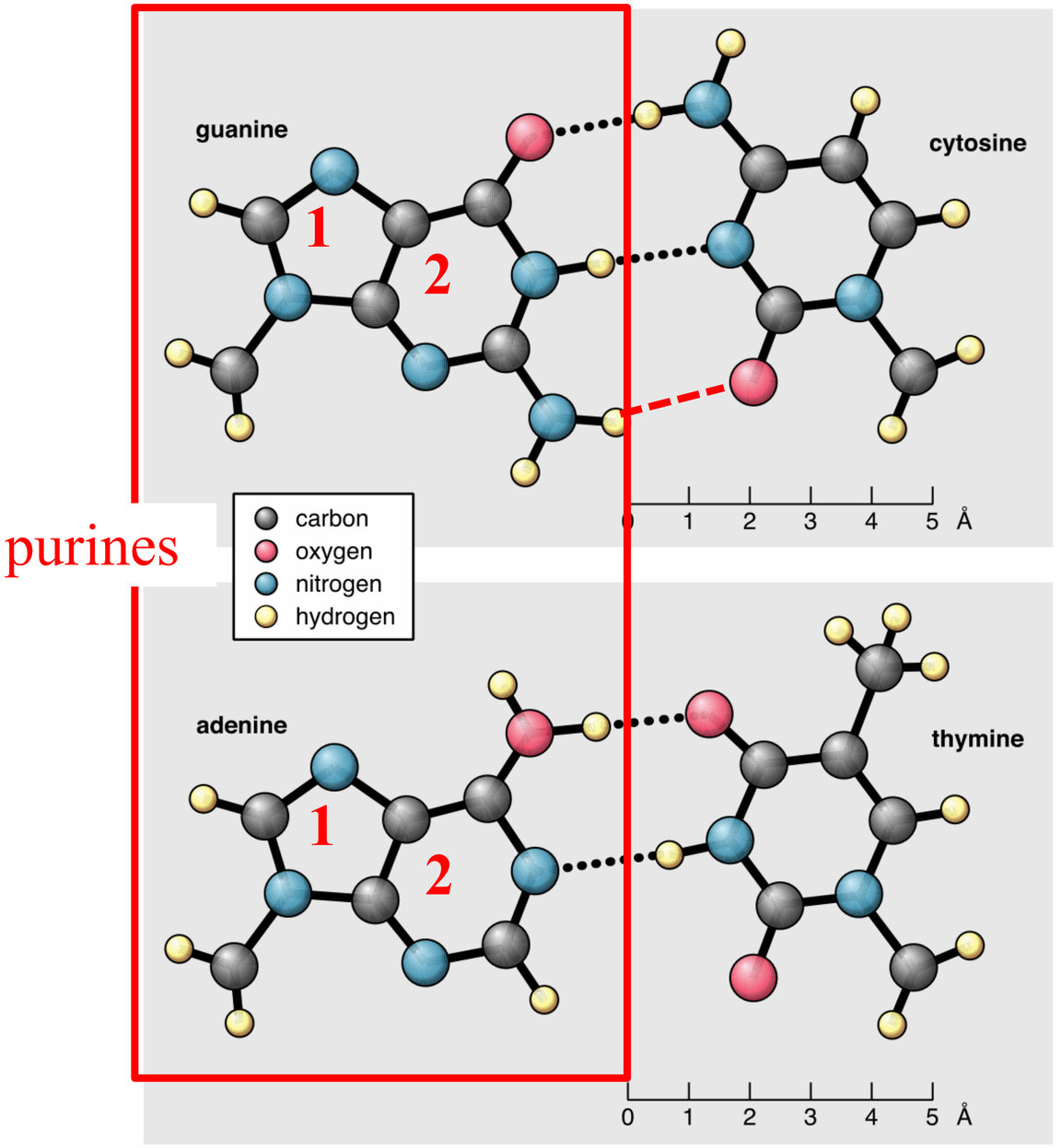


pyrimidines

Fig. 1.13

modified from
Watson and Crick. 1953b

Watson & Crick Base Pairs



purines

Fig. 1.13

modified from
Watson and Crick. 1953b

Always Three Rings Wide

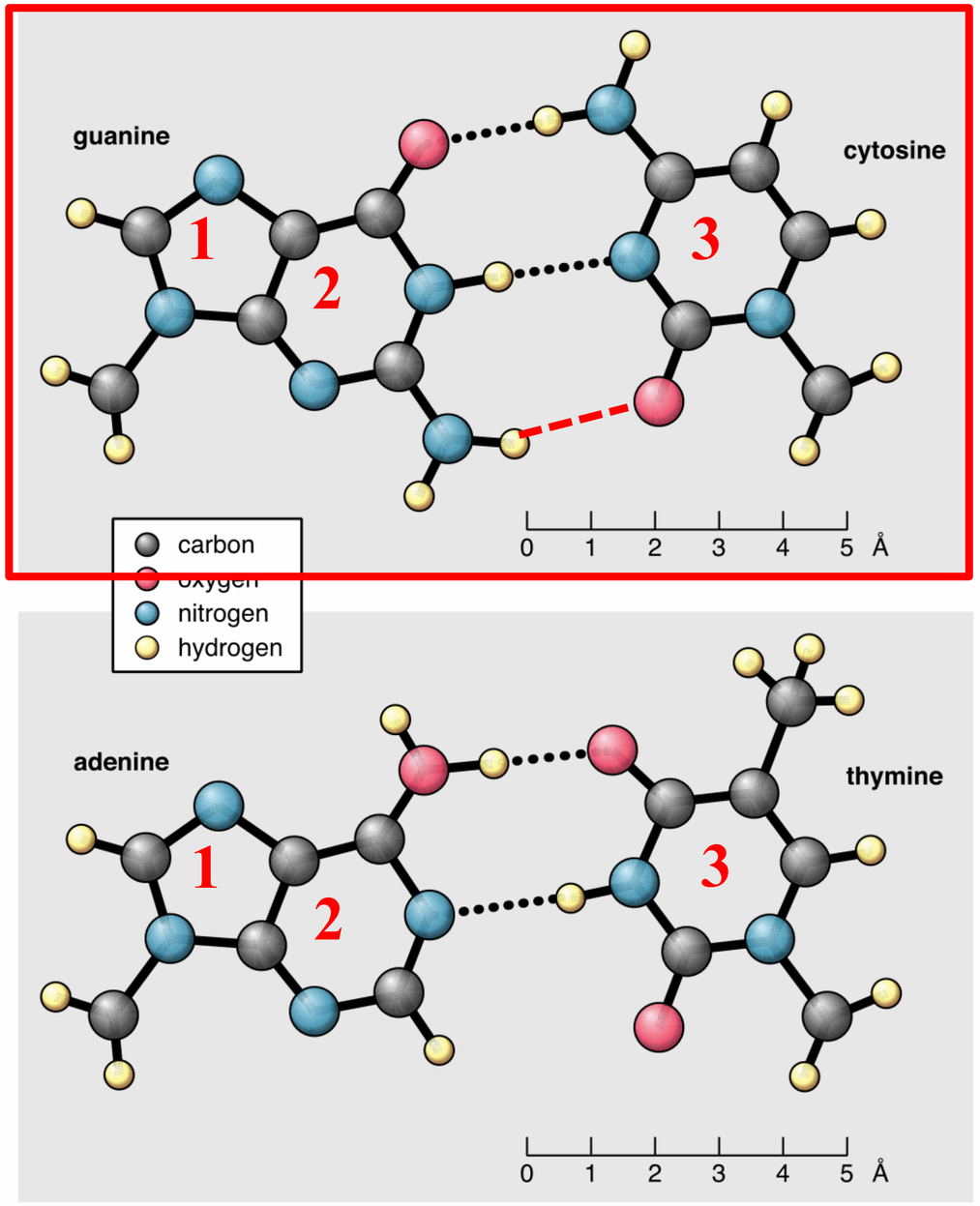


Fig. 1.13

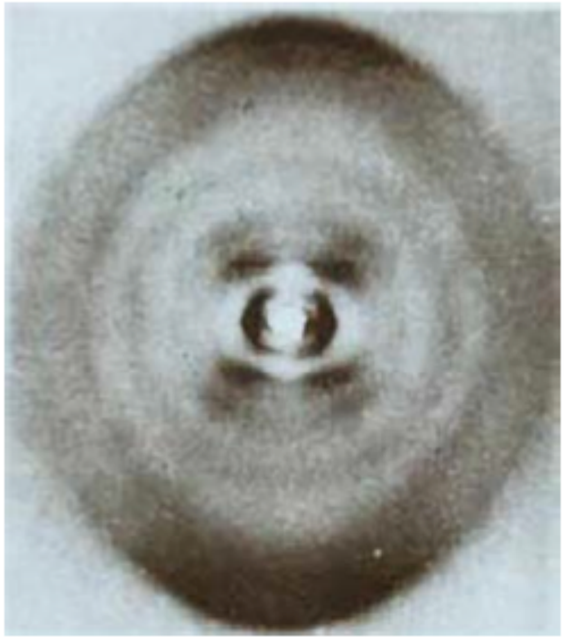
modified from
Watson and Crick. 1953b

What’s the controversy connected to these famous images? [Who, what, why?]

Integrating Questions

What's the controversy connected to these famous images? [Who, what, why?]

a)



b)

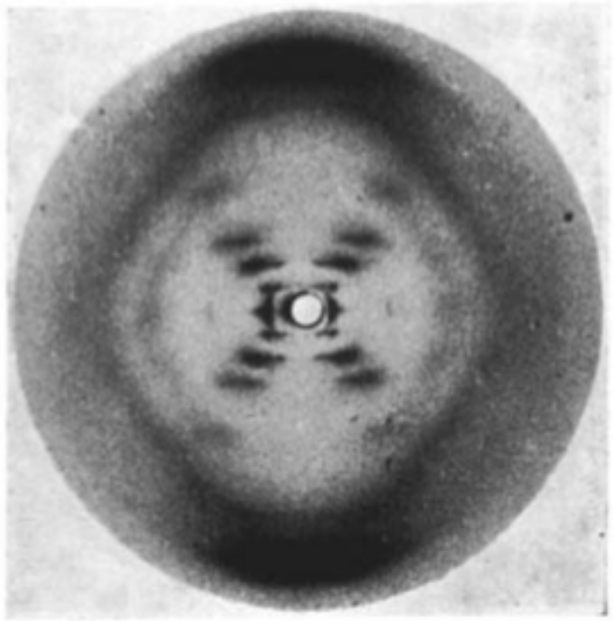
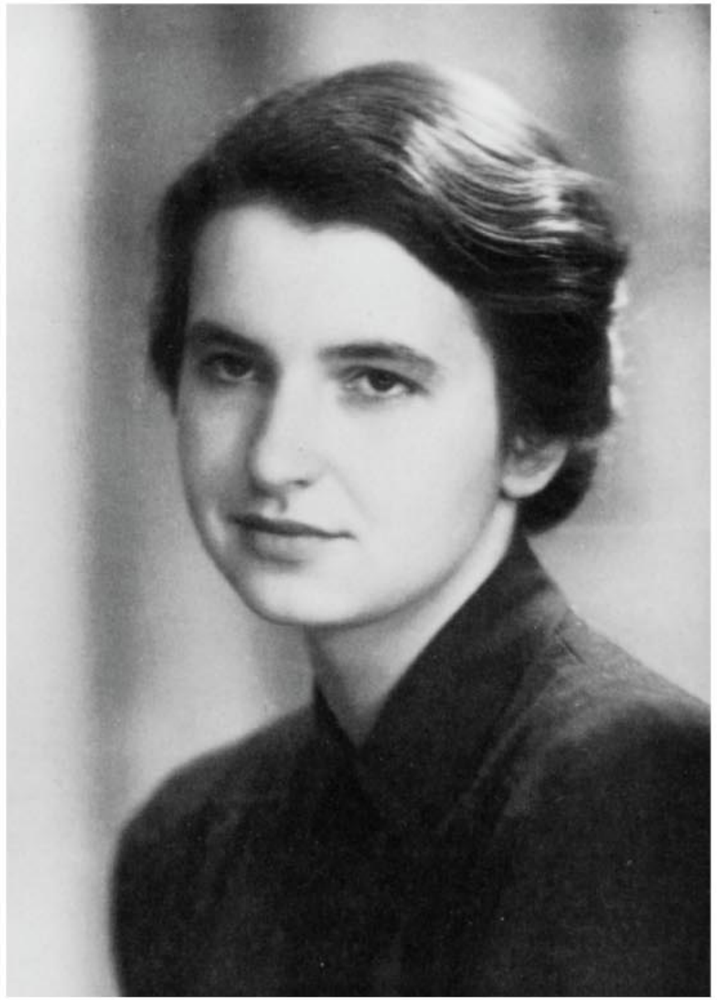
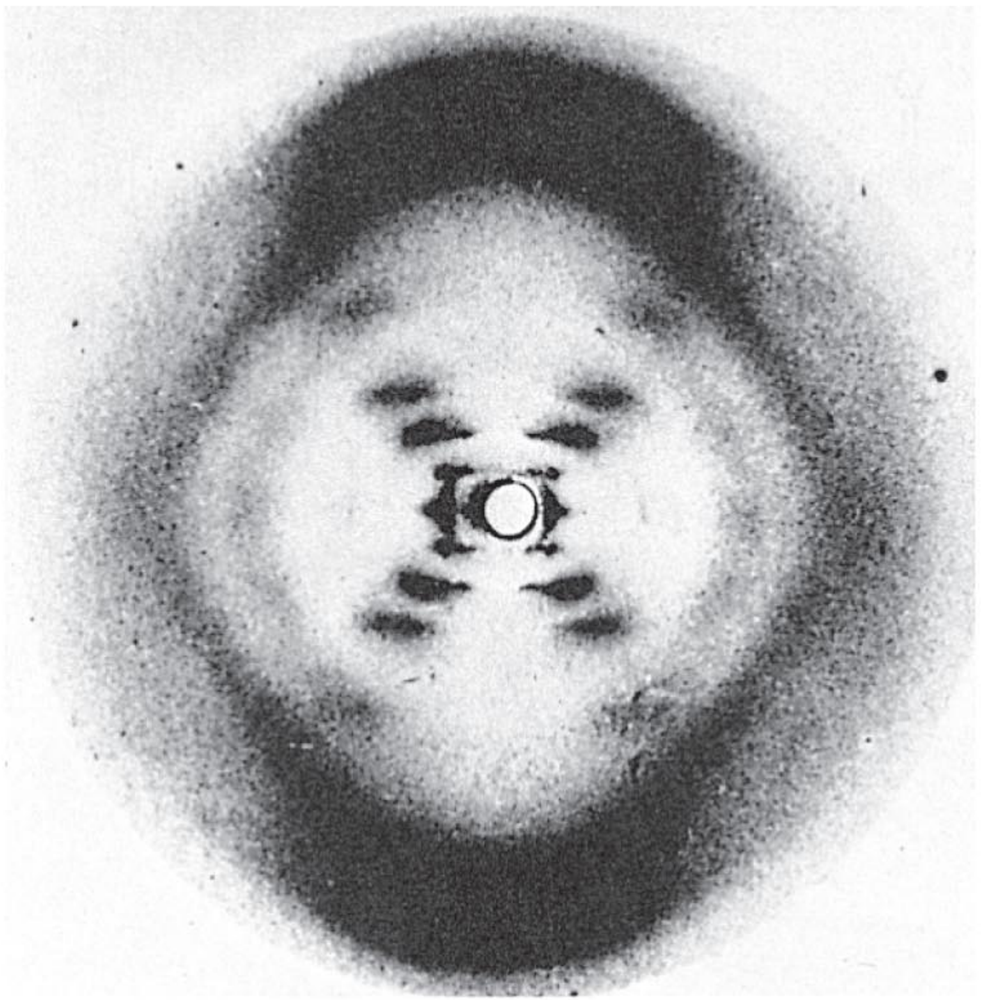


Figure 1.12 Two X-ray film images of DNA published on the same day. (a) On page 738, Wilkins *et al.* published this diffraction pattern to explain how the structure of DNA was deduced from the data. (b) On page 740, Franklin and Gosling published their X-ray diffraction pattern of DNA.



(a) Rosalind Franklin



(b) Franklin's X-ray diffraction photograph of DNA

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Ethical, Legal, Social 1.1: Who owns your DNA?

MYTH #1: DNA sequencing is done almost instantaneously.

MYTH #2: A person's entire DNA sequence is used in criminal cases.

MYTH #3: DNA evidence is properly used to convict criminals

MYTH #4: DNA evidence is infallible

https://youtu.be/xzfMfJxA0K0

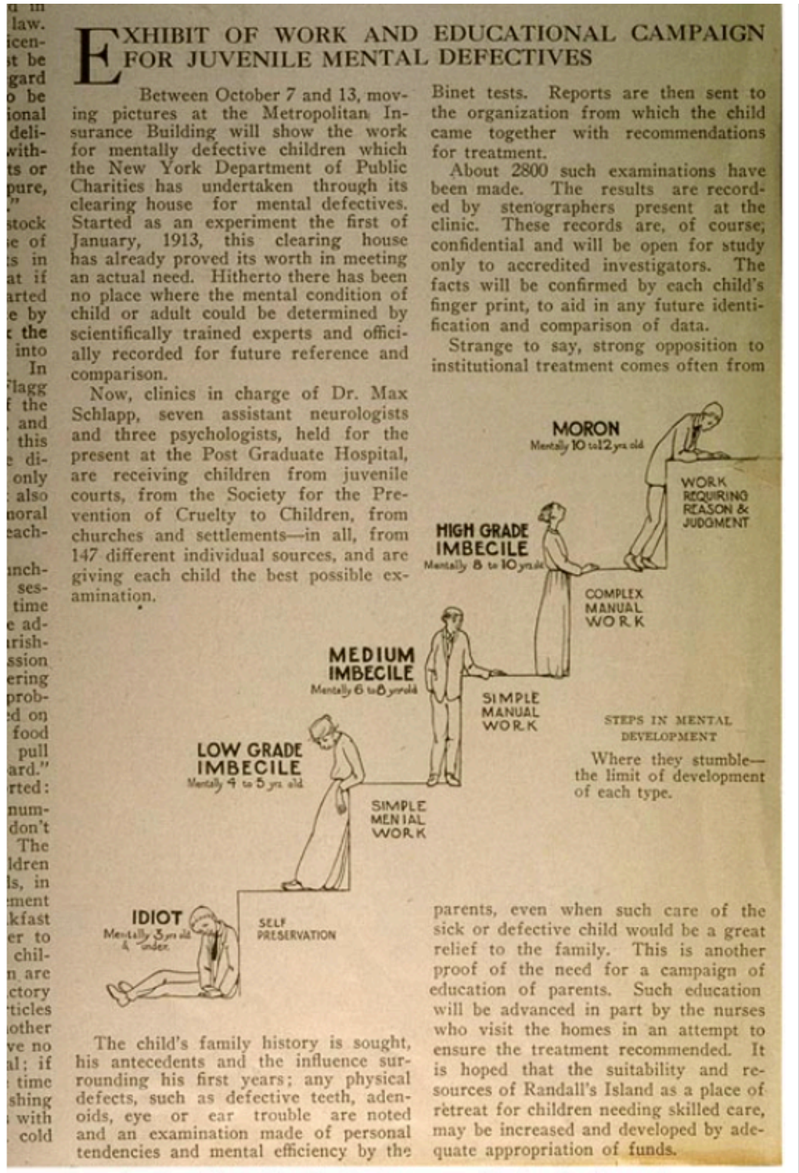

EXHIBIT OF WORK AND EDUCATIONAL CAMPAIGN FOR JUVENILE MENTAL DEFECTIVES

Between October 7 and 13, moving pictures at the Metropolitan Insurance Building will show the work for mentally defective children which the New York Department of Public Charities has undertaken through its clearing house for mental defectives. Started as an experiment the first of January, 1913, this clearing house has already proved its worth in meeting an actual need. Hitherto there has been no place where the mental condition of child or adult could be determined by scientifically trained experts and officially recorded for future reference and comparison.

Now, clinics in charge of Dr. Max Schlapp, seven assistant neurologists and three psychologists, held for the present at the Post Graduate Hospital, are receiving children from juvenile courts, from the Society for the Prevention of Cruelty to Children, from churches and settlements—in all, from 147 different individual sources, and are giving each child the best possible examination.

The child's family history is sought, his antecedents and the influence surrounding his first years; any physical defects, such as defective teeth, adenoids, eye or ear trouble are noted and an examination made of personal tendencies and mental efficiency by the Binet tests. Reports are then sent to the organization from which the child came together with recommendations for treatment.

About 2800 such examinations have been made. The results are recorded by stenographers present at the clinic. These records are, of course, confidential and will be open for study only to accredited investigators. The facts will be confirmed by each child's finger print, to aid in any future identification and comparison of data.

Strange to say, strong opposition to institutional treatment comes often from parents, even when such care of the sick or defective child would be a great relief to the family. This is another proof of the need for a campaign of education of parents. Such education will be advanced in part by the nurses who visit the homes in an attempt to ensure the treatment recommended. It is hoped that the suitability and resources of Randall's Island as a place of retreat for children needing skilled care, may be increased and developed by adequate appropriation of funds.

MORON
Mentally 10 to 12 yrs old
WORK REQUIRING REASON & JUDGMENT

HIGH GRADE IMBECILE
Mentally 8 to 10 yrs old
COMPLEX MANUAL WORK

MEDIUM IMBECILE
Mentally 6 to 8 yrs old
SIMPLE MANUAL WORK

LOW GRADE IMBECILE
Mentally 4 to 5 yrs old
SIMPLE MENTAL WORK

IDIOT
SELF PRESERVATION

STEPS IN MENTAL DEVELOPMENT
Where they stumble—the limit of development of each type.

ELSI Figure 1.1 1906 eugenics cartoon describing

LB144-Pandemic *2022*