

# BEFORE WE GET STARTED

**Please register your  
attendance.**

**Session 214**



SCAN HERE FOR  
TYLER ROSTERS



TYLER JUNIOR COLLEGE

# THE BIG PICTURE

An Overview  
of the  
Science Contest





# Science Directors

- Dr. Michelle McGehee  
**Biology**
- Dr. Brian Anderson  
**Chemistry**
- Dr. David Bixler  
**Physics**



# Purpose of UIL Exams

- to challenge students in the basic fundamental principles of science
- to promote learning in biology, chemistry, and physics
- to foster a sense of enthusiasm about advanced topics and courses in the sciences
- to help prepare students for the rigor of college level courses

# The Science Contest

- Biology, Chemistry & Physics are all combined on one exam, with awards given for each subject and for overall score.
- The exam is both an individual and a team competition.
- The contest covers a broad base of knowledge, and models STEM degree requirements at most Universities.

# Contest Structure

- 60 Multiple Choice Questions, which are divided into 20 of each topic Biology, Chemistry & Physics.
- Contestants are given 6 pts. for a correct answer, 0 pts. for unanswered questions, and lose 2 pts. for incorrect answers.
- The best possible answer is the correct answer.

# A Few Details...

- At the state competition only, there is no limit on the number of answer choices given on a question, e.g. A through J, not just up to five answer options A through E.
- There is no restriction that numeric wrong answers must differ by  $\pm 5\%$
- This will allow for more realistic pH problems in chemistry and will better model actual college-level exams.

# Academic Meets 2024

- Invitational Meets (practice - not governed by UIL)

**A:** Jan 10 – Feb 1

**B:** Feb 7 – Mar 8

- District Meet : Mar 24 – 29
- Regional Meet: Apr 25-26
- State Meet: May 19-21



# Advancement/Qualification

- Competitions are separated by division (1A-6A)
- Each HS may enter 6 contestants at their district meet, where a minimum of 3 contestants constitutes a team.
- Who advances to the next level:
  - 1<sup>st</sup>, 2<sup>nd</sup> & 3<sup>rd</sup> place overall scorers
  - Top scorer in each subject area
  - Top team by combined score\*
  - One alternate in each category

\*second place teams are eligible for possible advancement as a wildcard team

# Things to keep in mind...

- The contest is hard!
- Top scores at the State Contest will be nearly perfect in each subject.
- There needs to be a clear cut winner and this will require a selection of hard questions on the contest.
- All schools divisions 1A – 6A compete with the same contest, but the scores are only compared with schools in the same division.
- Do not be discouraged: there are benefits for all of the effort spent in preparing for the contest...

# Some Contest Rules

- Contestants have up to 2 hours, but must remain for at least 30 minutes.
- You may use additional scratch paper provided by the contest director.
- Simple Scientific Calculators

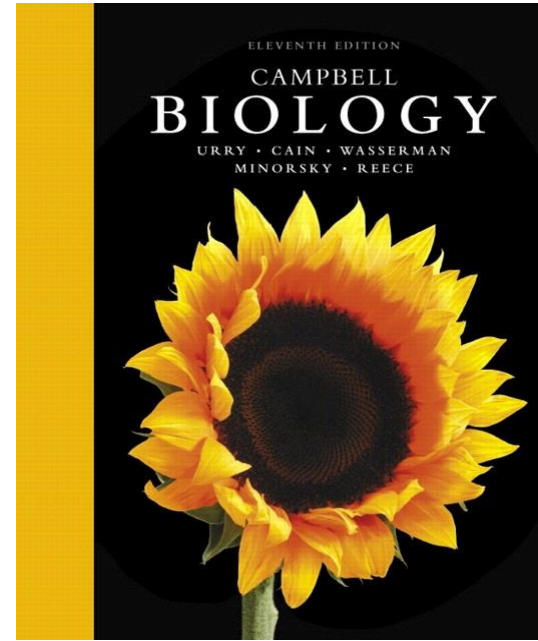
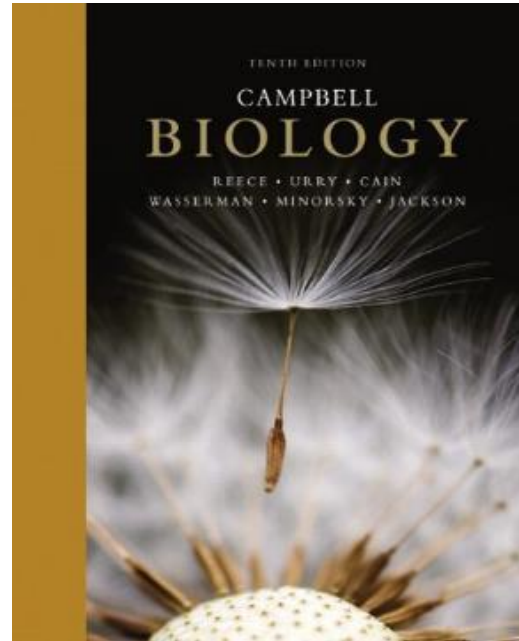
Casio FX-260 Solar

Sharp EL-501X

TI-30Xa

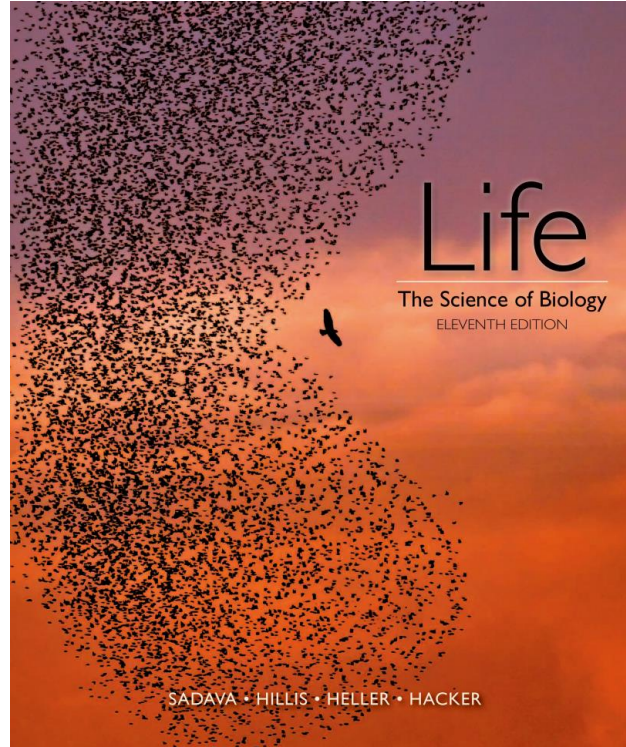
TI-30X II or TI-30X IIs

# Biology Texts



Pearson's *Biology*, 10<sup>th</sup> or 11<sup>th</sup> edition,  
Campbell, et. al.

# Biology Texts

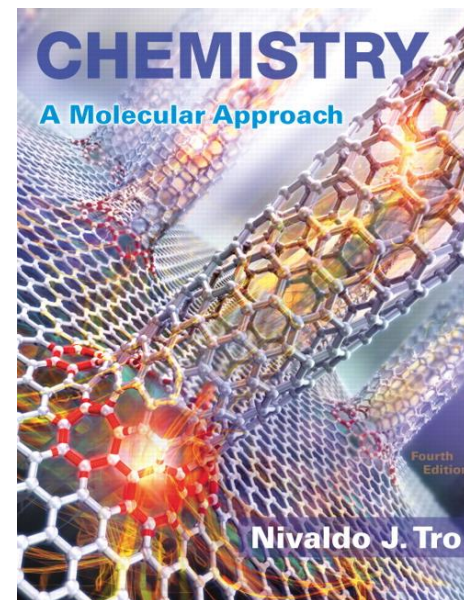
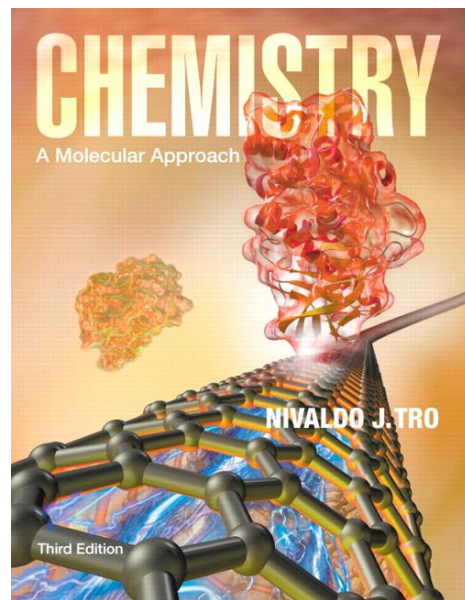
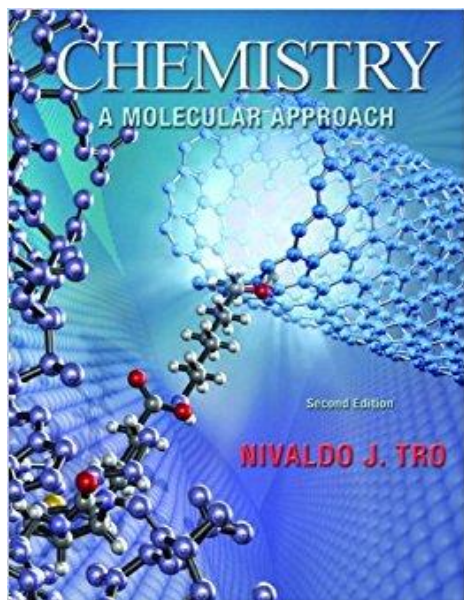


MacMillan's *Life*, 11<sup>th</sup> edition, Sadava, et. al.

# Online Biology Resources

- Learn Genetics University of Utah  
<http://learn.genetics.utah.edu/>
- Paul Anderson, Bozeman Science  
<http://www.bozemanscience.com/about/>
- Centers for Disease Control and Prevention  
<https://www.cdc.gov/>
- World Health Organization  
<http://www.who.int/>

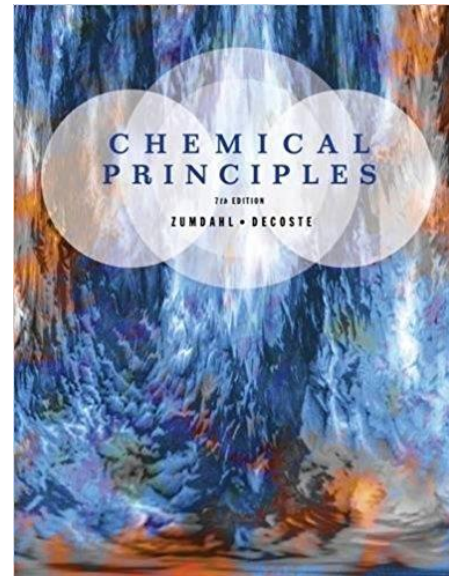
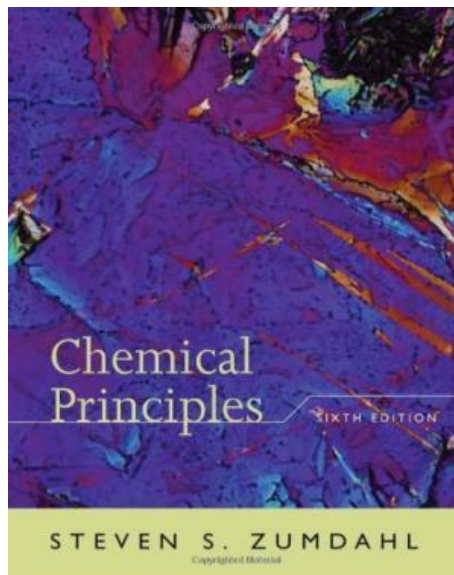
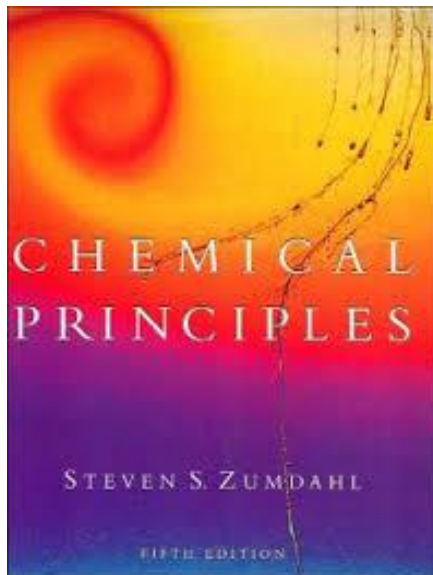
# Chemistry Texts



*Chemistry: A Molecular Approach* by Nivaldo Tro



# Chemistry Texts

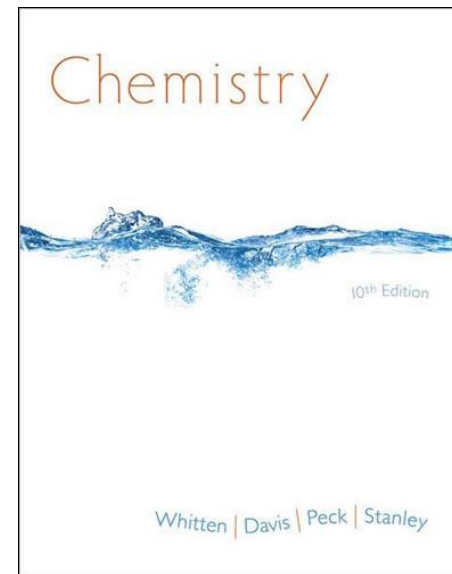
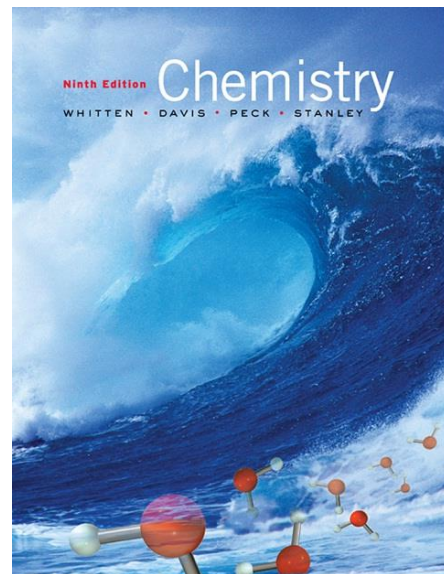
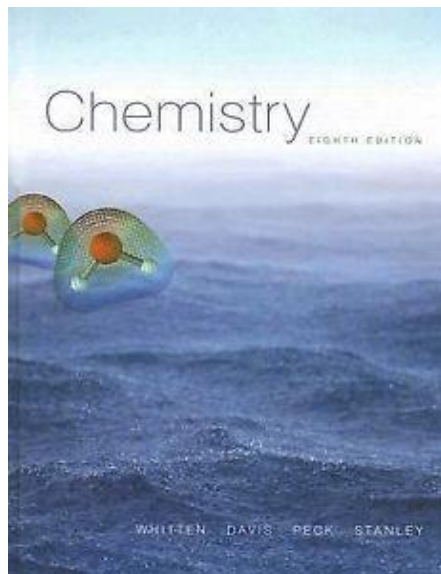


## *Chemical Principles*

by Zumdahl (& Decoste) 5<sup>th</sup>, 6<sup>th</sup>, and 7<sup>th</sup> editions



# Chemistry Texts



*Chemistry* by Whitten, Davis, Peck & Stanley

# Online Chemistry Resources



YouTube has lots of excellent chemistry tutorial videos

University of Texas gchem site:  
<https://gchem.cm.utexas.edu/>

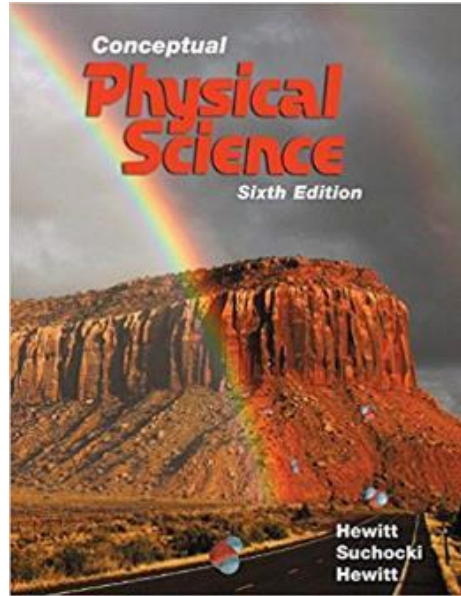


OpenStax Chemistry (Rice University)  
<https://openstaxcollege.org/textbooks/chemistry>

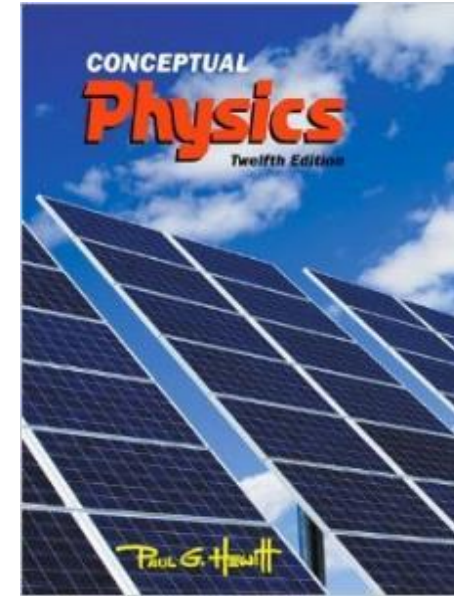
Chemistry LibreTexts (UC Davis)  
<https://chem.libretexts.org/>



# Introductory Physics Texts



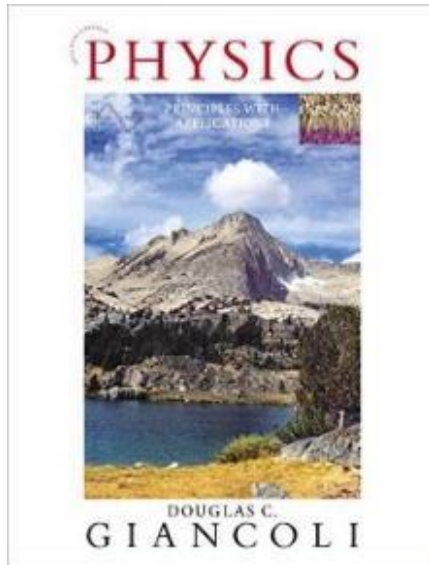
*Conceptual Physical Science*  
by Hewitt



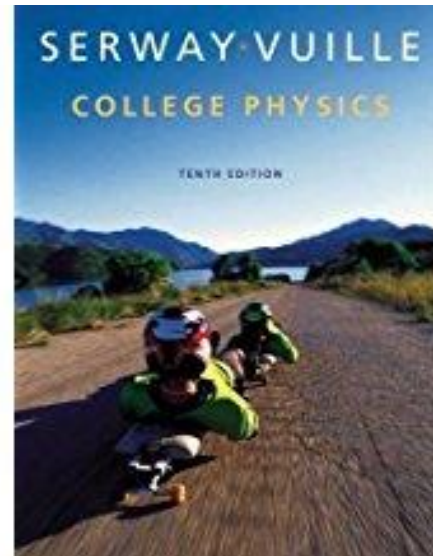
*Conceptual Physics*  
by Hewitt

# College Physics Texts

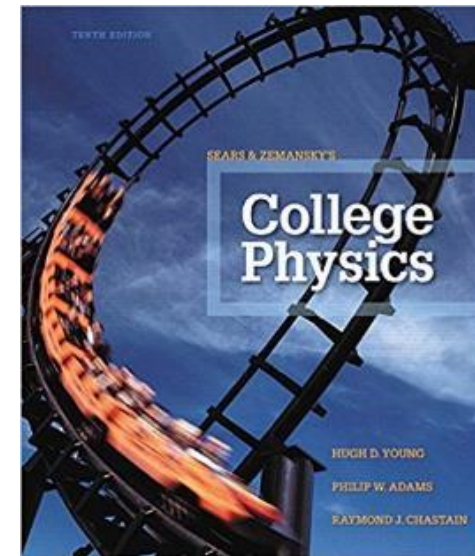
(algebra/trigonometry)



*Physics*  
by Giancoli



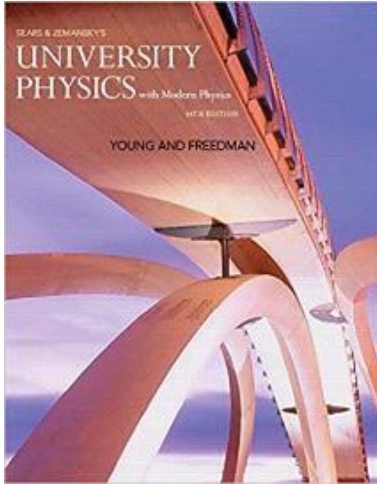
*College Physics*  
by Serway & Vuille



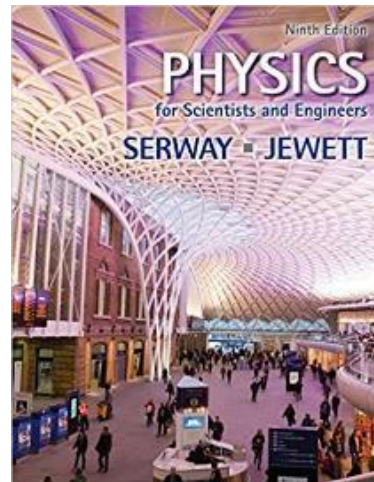
*College Physics*  
by Young

# University Physics Texts

(Calculus)

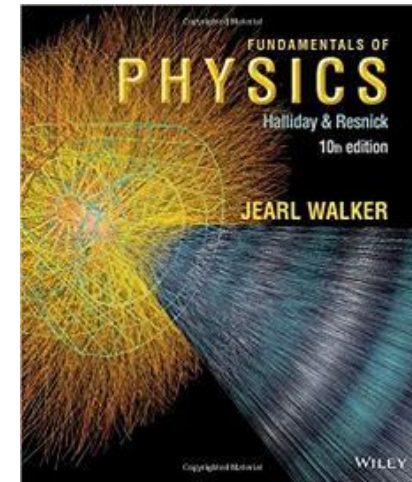


*University Physics*  
by Young and Freedman



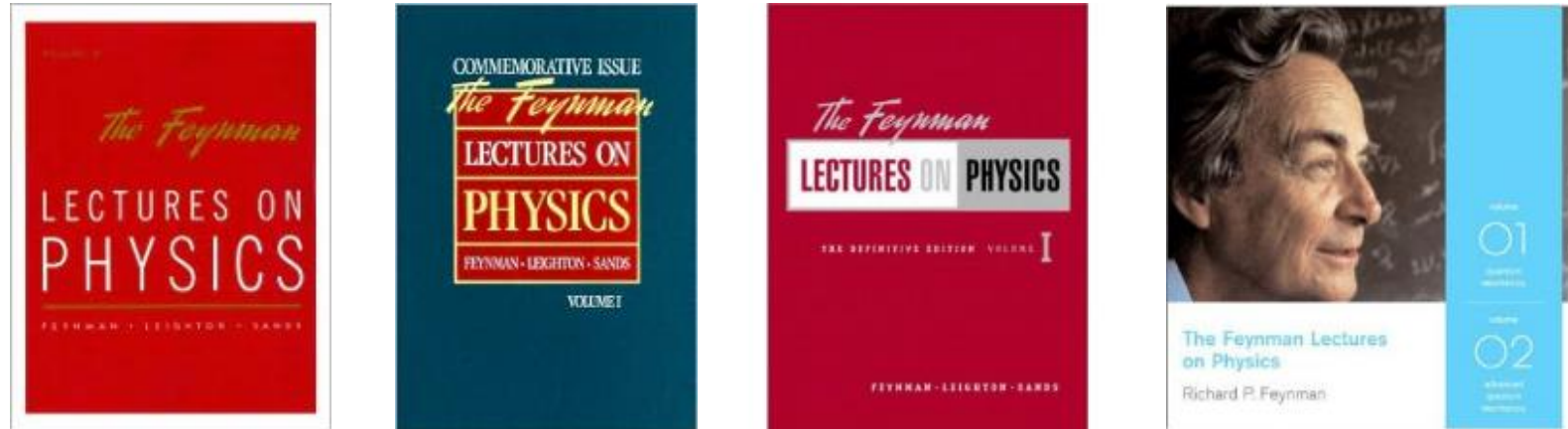
*Physics for Scientists and Engineers*  
by Serway and Jewett

*Fundamentals of Physics*  
by Halliday, Resnick, and Walker



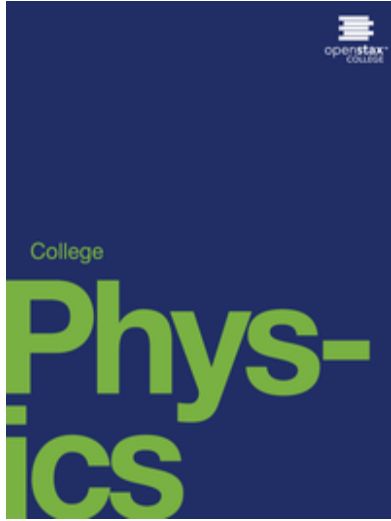


# Advanced Physics Texts



*The Feynman Lectures on Physics*  
by Feynman, Leighton & Sands

# Physics Online Resources



OpenStax Physics Text

<https://openstaxcollege.org/textbooks/college-physics>

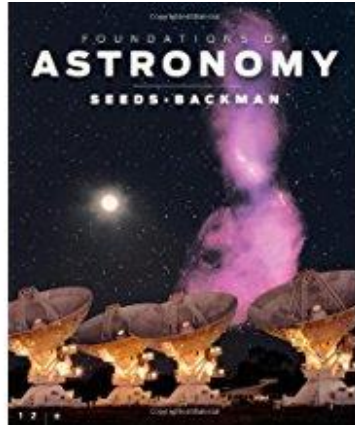
ComPadre Physlet Physics:

<http://www.compadre.org/physlets/>

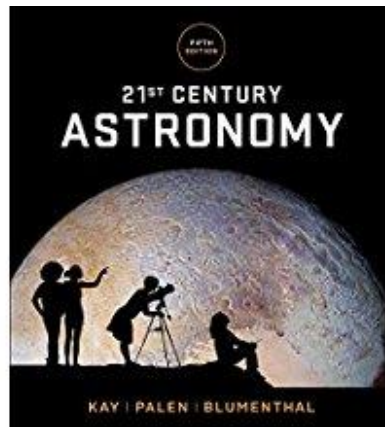
ComPadre Interactive Video Vignettes:

<http://www.compadre.org/ivv/>

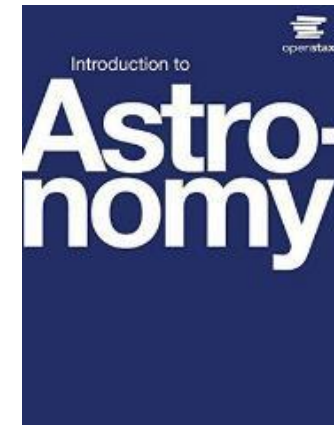
# Astronomy Texts



*Foundations of  
Astronomy* by Seeds  
and Backman



*21<sup>st</sup> Century  
Astronomy* by Kay  
and Palen



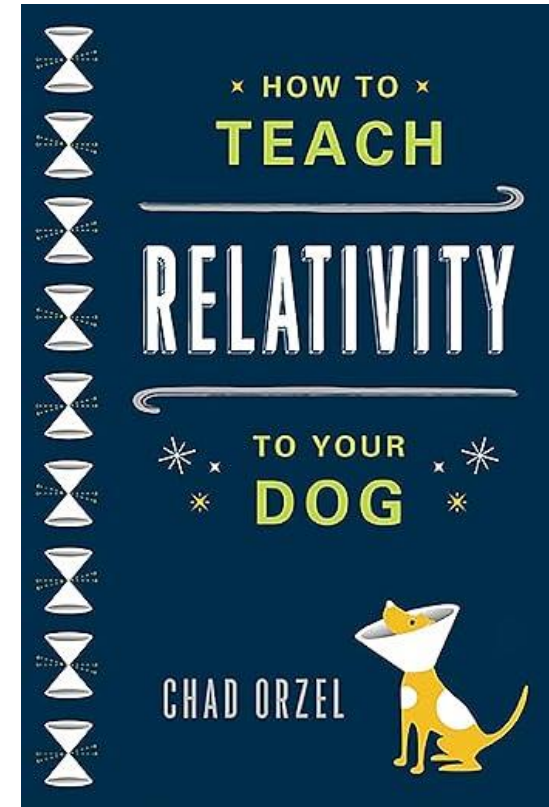
Openstax  
Astronomy



# Physics Directed Study Text

## *How to Teach Relativity to Your Dog*

by Chad Orzel



Not in C&CR, but is posted on UIL site.

# FAQs on Textbooks

- Do I need to get these exact texts?
- Does it need to be the same edition?
- Does the text matter?
- What about other texts?
- Options for finding cheap or free textbooks
  - Half-Price Books / Online book sellers
  - Interlibrary loan
  - Google “Free \_\_\_\_\_ textbook”

# UIL Online Resources

- <http://www.uiltexas.org/academics>

UIL Academics home page

- Go to STEM > SCIENCE

Information from the Contest Directors will be posted here.

The new Physics directed study information is posted here.

# Some Test-Taking Strategies

- Watch your units!
- Make diagrams with labels
- Look for order of magnitude answers
- Work backwards
- Problem identification...

Quick/Easy, Moderate or Hard

Use these identifiers to work on speed

Recognize when to skip or when to come back later

# Coaches/Team Suggestions

- Goal setting for student morale is very, very important!
- Have students solve old contests UIL or TMSCA exams & help out other students.
- Practice contests as posted on UIL invitational meet site or attend TMSCA contests.
- If possible coordinate with other teachers to arrange for help when needed.
- Positive reinforcement & food are good motivators.



# THANK YOU FOR ATTENDING



Tyler Eval

**We value your  
feedback.**  
Please complete  
conference evaluation  
after your last session.



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