Physics Unit 1 **Week 2**

Good Morning Class

This is an instruction email of **Week 2**.

Instructions

Topics

- **Atomic structure**
- **Atomic Numbers and Mass numbers**
- **Type of Radiations**

Please watch following instruction videos for week 2**. It is important to watch the videos in the following sequence.**

1. Mr Zhao's YouTube part 1 https://www.youtube.com/watch?v=Cerk-Ig7nJE
2. What is an Atom? http://www.youtube.com/watch?v=R1RMV5qhwyE (Do not worry about the concept of molecule)
3. Basic Atomic Structure http://www.youtube.com/watch?v=lP57gEWcisY
4. Atomic Number, Mass Number http://www.youtube.com/watch?v=dRfrvpVdKGM
5. Mr Zhao's video Part 2 https://www.youtube.com/watch?v=KURnFMSlB6k
6. Type of Radiations http://www.youtube.com/watch?v=5oUagoF_viQ
7. Mr Zhao's Video Part 3 https://www.youtube.com/watch?v=-Cx8_p-q_WY

Videos from that cool youtube presenter about Alpha, Beta Decays. They are really helpful

- Alpha Decay https://www.youtube.com/watch?v=CwExbnOzc4o
- Beta Decay https://www.youtube.com/watch?v=uqAA_D9Mi_I
- Atom capture an electron https://www.youtube.com/watch?v=sg_XoUDsP08 (Weekly assignment questions 5 explained)
- Gamma Rays https://www.youtube.com/watch?v=PW_KNP3glls (This contain more information (university level) than you should know, just watch it for fun, don't be stressed if you don't understand)

Please let me know any problems about this week's tasks via phone or email. I will try my best to assist you!

Physics Unit 1 **Week 3**

Good Morning Class

This is an instruction email of **Week 3**.

Introduction

This week's topics

- **Properties of alpha, beta and gamma radiation**
- **Nuclear half-life**
- **Radiation effects**

Please watch following instruction videos for week 2**. It is important to watch the videos in the following sequence.**

1. https://www.youtube.com/watch?v=RS8Klb7R00w Week 3 introduction by Mr Zhao
2. https://www.youtube.com/watch?v=QJh_WHAyDLM E=mc^2 By Mr Zhao (The sound is about 2 second faster than the video, sorry about the error, I am working on fixing those errors for future videos)
3. http://www.youtube.com/watch?v=opjJ-3Tkfyg Nuclear Half-Life Introduction by other youtube presenters
4. http://www.youtube.com/watch?v=WAsmY4ocWSA Nuclear Half-life Calculation Examples by other youtube presenters
5. https://www.youtube.com/watch?annotation_id=annotation_649178&feature=iv&src_vid=jbi7gJTPSXk&v=aJkx6hAD-4E The radioactive material in your smoke alarm By other youtube presenters

Works needs to be hand in this week

DECV Assignment Booklet (Electronic copies available) Page 72-73 week 3

Practice questions (Do not need to hand in)

Text Book Section 1.3 Q1-4, Q6-10

1.4 Q1,3,4,6,8

Please contact your teacher for help!

Physics Unit 1 **Week 4**

Good Morning Class

This is an instruction email of **Week 4**.

Introduction

This week's topics

- **Radiation Dose**
- **Does Equivalent**
- **Radiation Damage to human**

Please watch following instruction videos**. It is important to watch the videos in the following sequence.**

1. Experimental Demonstration of radiation in a lab by another youtube presenter (**Very Interesting must watch)** https://www.youtube.com/watch?v=Ka9tMfad3g4
2. Radiation Dose(Animation) by another youtube presenter https://www.youtube.com/watch?v=PTaSfpBJgCE
3. Radiation Protection and effects on human (Animation) by another youtube presenter https://www.youtube.com/watch?v=Fjy_hVpWgWs
4. **Read the example calculation on your DECV notes Page 4.2 and Text Book Page 28, 29**

Works needs to be hand in this week

DECV Assignment Booklet (Electronic copies available) Page 66-69 week 4 (Do Not worry about questions 5)

Practice questions (Do not need to hand in)

Text Book Section 1.5 Q2, 4, 5, 6, 7 and 9

Chapter Review Q2, 6, 8, 15 and 17

Please contact your teacher for help!

Physics Unit 1 **Week 5**

Good Morning Class

This is an instruction email of **Week 5**.

We are starting the topic of electricity. It is a very important topic! About half of year 12 syllabus is based on electricity (the rest of year 12 is based on motion which we study semester 2). Indeed, I need you to spend more time on this topic. All questions including text book practice questions should be completed. Please work hard with electricity for the next few weeks so your life next year would be a lot easier. Please contact me for any uncertainty of the concepts with electricity, this topic is extremely important!

Introduction

This week's topics

- **Electrical Charge and its relation with electrons**
- **Electrical Current**
- **Voltage**
- **Power**

Please watch following instruction videos**. It is important to watch the videos in the following sequence.**

1. Electricity introduction by other youtube presenters
   https://www.youtube.com/watch?v=ZAFW4zdXpbY
2. How to measure electrical charge by other youtube presenters
   https://www.youtube.com/watch?v=DvlpAsDwXPY
3. Electrical Charge and Electrical Current notes by Mr Zhao
   https://www.youtube.com/watch?v=aV7SI-wPEm8
4. How fast does electron moves? By other youtube presenters
   https://www.youtube.com/watch?v=jbi7gJTPSXk
5. Voltage and Power notes by Mr Zhao
   https://www.youtube.com/watch?v=j8O7hYNfhzE
6. How to read an equation Week 5 assignment question 4 help by Mr Zhao
   https://www.youtube.com/watch?v=wff6FhfUF9M
7. Electrical Force experiment by other youtube presenters (watch for fun)
   https://www.youtube.com/watch?v=jkYz1WlpRSQ

Works needs to be hand in this week

DECV Assignment Booklet (Electronic copies available) Page 61-65 week 5

Practice questions (Do not need to hand in)

Text Book Section 2.1 Q5, 6, 8 and 10

Section 2.3 Q4, 5, 6, 11 and 12

Please contact your teacher for help!

Physics Unit 1 **Week 6**

Good Morning Class

This is an instruction email of **Week 6**. This week's work is due on Friday 14th March.

I have modified the number of text book question you have to do. Please complete text book practice questions since this topic is really important. Also, please check the answers and correct them after you have completed text book questions.

Do not try to conduct any electrical experiment by yourself at home! Electricity could be very dangerous. If you want to conduct appropriate experiment, you are welcome to work in the lab at DECV. (Contact me to make a booking first)

Introduction

This week's topics

- **Resistance, Ohmic and Non-ohmic devices**
- **Ohm's Law**
- **Electrical Power calculations**

Please watch following instruction videos**. It is important to watch the videos in the following sequence.**

1. Start to make your cheat sheet by Mr Zhao
   https://www.youtube.com/watch?v=2WblCwmcChI
2. Dangerous Short Circuit demonstration by other youtube presenter
   https://www.youtube.com/watch?v=NwhvugSVHU0 **(do NOT try this at home)**
3. Short Circuit and resistance by Mr Zhao
   https://www.youtube.com/watch?v=XzOukE2AhB8
4. Short circuit hazard by other youtube presenter
   https://www.youtube.com/watch?v=qu-ssfQRRJg **(do NOT try this at home)**
5. Short Circuit Introduction by other youtube presenter
   https://www.youtube.com/watch?v=GGVIaQbeJHo **(do NOT try this at home)**
6. Ohm's Law by Mr Zhao https://www.youtube.com/watch?v=HK23owLGzsU
7. Ohmic device examples by other youtube presenters
   https://www.youtube.com/watch?v=dcRuLaNE0Go
8. Non-ohmic device examples by other youtube presenter
   https://www.youtube.com/watch?v=7hnu6dGhbxY
9. Electrical Power calculations by Mr Zhao
   https://www.youtube.com/watch?v=pFqgLW06PyQ

- Yenka Software download and installation for DECV students by Mr Zhao https://www.youtube.com/edit?o=U&video_id=vsDsXDeRcDk
- Yenka electricity circuit simulation by Mr Zhao https://www.youtube.com/watch?v=22neYOY-M1Y

Works needs to be hand in this week

DECV Assignment Booklet (Electronic copies available) Page 57-60 week 6

About questions 5 of weekly assignment -The quiz is located on the online resources of your electronic version of text book. You need to active your Heinemann text book online and complete chapter 3 quiz. If you have difficulty accessing the online quiz, you can **show me a proof of completion of practice questions instead**. (A simple photo of your practice questions work would be ok) I just want to make sure that you are capable of completing those types of questions and obtained a good understanding of the topic.

Practice questions (Do not need to hand in)

Text Book Section 2.4 Q2, 3, 4, 5, 8, 9

Section 2.5 Q1, 2, 3, 5, 6, 7

Chapter 2 chapter review Q3, 11, 16, 17, 20

Please log on to DECV online, Physics Portal, Announcement to view this announcement due to email format error.

Yibo Zhao

Physics Unit 1 **Week 7**

Good Morning Class

This is an instruction email of **Week 7**. This week's work is due on Friday 21st March.

Please complete all practice questions as well. Those questions would appear in year 12 VCE final exam. Please obtain a good skill of analysing electrical circuits and construct a year 12 usable cheat sheet for this topic.

Introduction

This week's topics

- **Series electrical circuit**
- **Parallel electrical circuit**
- **Electrical circuits with resistors connected in combinations of series and parallel.**
- **Calculations of voltage, current and power of each resistors.**
- **The design of a voltage divider**

Please watch following instruction videos**. It is important to watch the videos in the following sequence.**

1. How current splits? By Mr Zhao https://www.youtube.com/watch?v=R6vee0MZ3rY
2. Series electrical circuits By Mr Zhao https://www.youtube.com/watch?v=s6Y79EWOqXo
3. Parallel circuit By Mr Zhao https://www.youtube.com/watch?v=MtMOoSu2yWs
4. Series and parralled circuit animation by other youtube presenters https://www.youtube.com/watch?v=x2EuYqj_0Uk
5. Series and Parallel Circuit practical Demostration by other youtube presenters (very informative must watch) https://www.youtube.com/watch?v=a6YyEeqFFDA
6. Comparing series circuit and parallel circuit By Mr Zhao https://www.youtube.com/watch?v=7NExplbyBAk
7. Equations summary and examples By Mr Zhao https://www.youtube.com/watch?v=REA4LKcB7pU
8. Complex electrical circuit calculation example by other youtube presenter (very informative must watch) https://www.youtube.com/watch?v=CZgqGTxL9cA
9. Design of a voltage divider by Mr Zhao https://www.youtube.com/watch?v=P53t89w12WI

Works needs to be hand in this week

DECV Assignment Booklet (Electronic copies available) Page 51-56 week 7

Practice questions (Do not need to hand in)

Text Book Section 3.1 Q1, 4,6,7,8,9,10

Section 3.2 Q1-8

Please contact your teacher for help!

Physics Unit 1 **Week 8**

Good Morning Class

This is the last studying week on the topic of electricity this semester. Well Done Everyone! You all did well in this topic. ☺

This is an instruction email of **Week 8**. This week's work is due on Friday 28th March.

Student need to submit experimental report this week due to VCE requirement. More detail would be provided in the following instructions.

This week's topics

- **The ground acts as the negative terminal of electrical energy source**
- **3-pin electrical sockets**
- **Safety issues**
- **Household electrical circuits**

Please watch following instruction videos**. It is important to watch the videos in the following sequence.**

1. **The nature of the ground by Mr Zhao https://www.youtube.com/watch?v=5JL1GQHfjGg**
2. **The power sockets by Mr Zhao https://www.youtube.com/watch?v=43VLbTrcabI**
3. **Household electricity plugs and cables by other youtube presenter https://www.youtube.com/watch?v=AXdsQeE4vb4**
4. **Household electricity safety by other youtube presenter**
5. **https://www.youtube.com/watch?v=38yCsy7mO1c**
6. **Two way switch system by Mr Zhao https://www.youtube.com/watch?v=_PQjbas6xEY**

Works needs to be hand in this week

DECV Assignment Booklet (Electronic copies available) Page 23-27 week 8 (**For question 5, you need to submit a proof of completion of text book practice question "Chapter review only" if there is problem with online quiz**)