

## Year 11 into 12 Bridging the Gap

### Summer Work for 2020 Entry



**St Philip Howard**  
SIXTH FORM  
*Learn, Grow, Achieve*

We want you to be really successful and what it takes to be successful at GCSEs is different from being successful at A-Levels. Although you have fewer subjects there are different skills at A-Level and the volume of work is greater because the depth and detail is more demanding.

Bridging the Gap Work will reassure you that the subject you have selected is for you, or allow you time to change your choice of subject at enrolment, as long as there is space and you meet the entry criteria. We want you to study a course that interests you and you are sufficiently qualified to study.

**Subject:**  
Chemistry

**Head of Subject:**  
J Duncan

**Aim of Bridging Work:**

To ensure students have revised the concepts in bonding, structure and properties thoroughly and to extend their knowledge a little about covalent bonding

**Equipment List :**  
Periodic table

**Textbook(s) for September:**

Available on student R drive

**Reading List:**

**[www.chemguide.com](http://www.chemguide.com)**

**Tasks**

This week you are being supplied with some worksheets that will ensure you revise all aspects of bonding from the GCSE syllabus. Do not rush these because you will not cope with A' level chemistry unless you understand this at GCSE level thoroughly.

You should work through all questions on the following sheets:

Structures-Types-1 1<sup>st</sup> June.pdf

Structures-Types-2 1<sup>st</sup> June.pdf

Answers are given on:

Structures-Types-1 MS 1<sup>st</sup> June.pdf

Structures-Types-2 MS 1<sup>st</sup> June.pdf

## Tasks

Having a bother sorting out bonding in your head?

Try watching these videos:

Drawing Ionic Bonding - Atoms, Electrons,

<https://youtu.be/pvaQMCKuGLE>

Properties of ionic compounds - Atoms, Electrons,

<https://youtu.be/h4mVHBANAA>

Drawing Covalent Bonding Lewis Structures or Dot and Cross-Atoms, Electrons,

<https://youtu.be/4SkHncOprhs>

Properties of simple covalent compounds - Atoms, Electrons,

<https://youtu.be/2-CjI8nWFW0>

Okay so you are now ready to look at some A' level material so we are introducing the dative covalent bond, sometimes also called the coordinate bond. This is a new concept for you, involving one atom (on a molecule) with an unbonded lone pair of electrons sharing these with another atom or ion that has an empty orbital. See the video clip here:

<https://youtu.be/2sRU6KbL3sE>

Now try the questions on the next page>

14. Which of the following is going to show dative covalent bonding?	a. $\text{NH}_3$
	b. $\text{NH}_4^+$
	c. $\text{H}_2\text{O}$
	d. $\text{CH}_4$
15. Which of the following is going to show dative covalent bonding?	a. $\text{NH}_3\text{BF}_3$
	b. $\text{PF}_3$
	c. $\text{H}_2\text{SO}_4$
	d. $\text{CaCO}_3$
16. Which of the following is going to show dative covalent bonding?	a. $\text{CO}$
	b. $\text{CO}_2$
	c. $\text{CH}_4$
	d. $\text{NaOH}$
17. What type of bonds are in $\text{O}_2$ ?	a. Single
	b. Double
	c. Triple
	d. Dative
18. What type of bonds are in $\text{HF}$ ? b. Double c. Triple d. Dative	a. Single
	b. Double
	c. Triple
	d. Dative
19. What type of bonds are in pentane?	a. Single
	b. Double
	c. Triple
	d. Dative
20. What type of bonds are in $\text{CN}^-$	a. Single
	b. Double
	c. Triple
	d. Dative

Answers:

20. c  
19. a  
18. a  
17. b  
16. a  
15. a  
14. b

