

# PGCE Science Pathways Reading List July 2020

## School of Education PGCE Secondary Programme

Dear PGCE Science (with Bio/Chem/Phys) student

I look forward to meeting you in the coming academic year for a busy but rewarding time as you begin to train to become a teacher of Science (with Bio/Chem/Phys).

I would like you to bring in an item/artefact that relates to your identity as a biology or chemist or physicist or scientist.

**You need to read the following documents in preparation for the start of your PGCE.**

EEF (2020) Improving Secondary Science. Available at:

<https://educationendowmentfoundation.org.uk/tools/guidance-reports/improving-secondary-science/>

Harlen, W. (2010) Principles and Big Ideas of Science Education, Herts: ASE.

Harlen, W. (2015) Working with the Big Ideas of Science Education, SEP.

Ofsted (2013) Maintaining Curiosity: a survey into science education in schools. Available at: <http://www.ofsted.gov.uk/resources/maintaining-curiosity-survey-science-education-schools>

Both ASE docs are available from <https://www.ase.org.uk/bigideas>

I have set out the reading list below which will be used in support of your training. I would suggest that your reading should start as soon as possible as this will help you to get started on your future studies. The main science texts are essential and you are strongly advised to buy your own copies (Association for Science Education\* books are available direct from their website).

**\*All ASE publications are cheaper for members so I recommend getting a student membership now!** <https://www.ase.org.uk/membership/membership-category/>

### 3 main science texts:

Osborne, J. and Dillon, J. (2010) *Good Practice in Science Teaching: What Research has to say*, Milton Keynes: Open University Press. ISBN: 9780335238583

Wellington, J. and Ireson, G. (2017) *Science Learning, Science Teaching (4<sup>th</sup> Edn)*, London, Routledge. ISBN: 978-1138654105.

Driver, R. & Squires, A. (1994)\* *Making Sense of Secondary Science: Research into Children's Ideas*, London: Routledge Falmer. ISBN: 0415097657

*\*This is an old book but a classic. Don't bother with the expensive new edition. It just has a forward saying that it is still relevant!*

**Plus your subject specialism** from the following (the other two are also strongly recommended).

### **Biology**

Reiss, M. (2011). *Teaching secondary biology (2<sup>nd</sup> Edn)*, Association for Science Education, Hatfield: John Murray. ISBN: 9781444124316.

### **Chemistry**

McDuell, B. (Editor) (2012) *Teaching secondary chemistry (2<sup>nd</sup> Edn)*, Association for Science Education, Hatfield: John Murray. ISBN: 9781444124323.

### **Physics**

Sang, D. (Ed) (2011) *Teaching secondary physics (2<sup>nd</sup> Edn)*, Association for Science Education, Hatfield: John Murray. ISBN: 9781444124309.

### **Other suggested science reading:**

Toplis, R. (2015) *Learning to Teach Science in the Secondary School (Learning to Teach Subjects in the Secondary School Series) (4<sup>th</sup> Edn)*. Routledge. ISBN: 978-0415826433

Banner, I. & Hillier, J. (Eds). (2018) *ASE Guide to Secondary Science Education (4<sup>th</sup> Edition)*, Hatfield: Association for Science Education. ISBN: 9780863574580

Millar, R. Leach, J. Osborne, J. and Ratcliffe, M. (2006) *Improving Subject Teaching; Lessons from research in science education*, London, Routledge ISBN: 9780415362108

Abrahams, I. (2010) *Practical Work in Secondary Science: A Minds-On Approach*, London and New York: Continuum books. ISBN: 978-1847065049

I also really recommend reading the following book by John Ziman. It is not strictly aimed at trainee science teachers but is a fascinating exploration of the 'Nature of Science', sometimes referred to as 'Ideas About Science'. Anyone embarking on inspiring young minds to science should read this book.

Ziman, J. (2000) *Real Science: What it is and what it means*, Cambridge. Cambridge University Press. ISBN: 0521893100

**Please download the pdf files of the key stage 3 & 4 Science National Curriculum from the Department for Education website.**

**Also, please bring to our first Sciences Pathway session in Induction week an item that you feel helps to define you as a Science specialist. You may wish to bring something which identifies you as a biologist/chemist or physicist or as a scientist. We will introduce ourselves to the group as bio/chem/phys/science specialists and referring to your item can help to provide a focus.**

I hope you have a good summer and I look forward to working with you in September.

Best wishes

Matthew Wharf  
Science Pathways Leader  
July 2020

**N.B.**

**You will receive a full induction timetable on arrival. However, here is an outline of the first two weeks so that you can arrange childcare etc.**

	Plan for Induction weeks
Tues 8/9/20	9am-3pm*
Wed 9/9/20	9am-3pm*
Thurs 10/9/20	Online sessions between 10am-2pm
Fri 11/9/20	Online working 10am-1pm
Mon 14/9/20	Online sessions 11am-4pm
Tues 15/9/20	9am-3pm
Wed 16/9/20	9am-3pm
Thurs 17/9/20	Online sessions between 10am-2:30pm
Fri 18/9/20	Self-directed reading day

\*We are planning to take small groups up to Plymouth Hoe, so please take into account that you may not be able to make it to the train station before 3:30pm

**And here is the PGCE calendar.**

Please be aware that on placement days you will be expected to follow the placement school's policies, including those around Covid.

# PGCE Secondary Student Calendar 2020/21

**Key:**

Induction
1 <sup>st</sup> Placement School Day
2 <sup>nd</sup> Placement School Day
Faculty Teaching Day
Reading Day
UK Bank Holidays
Primary School Experience

Week no.	SEPTEMBER '20						
	M	T	W	Th	F	S	S
6		1	2	3	4	5	6
7	7	8	9	10	11	12	13
8	14	15	16	17	18	19	20
9	21	22	23	24	25	26	27
10	28	29	30				

Induction to Professional Teaching and Learning – (EPGS615)  
Submission Date  
2<sup>nd</sup> November 9pm

Week no.	OCTOBER '20						
	M	T	W	Th	F	S	S
10				1	2	3	4
11	5	6	7	8	9	10	11
12	12	13	14	15	16	17	18
13	19	20	21	22	23	24	25
14	26	27	28	29	30	31	

Week no.	NOVEMBER '20						
	M	T	W	Th	F	S	S
14							1
15	2	3	4	5	6	7	8
16	9	10	11	12	13	14	15
17	16	17	18	19	20	21	22
18	23	24	25	26	27	28	29

Practical Teaching 1 (EPGS413)  
Submission Date  
11<sup>th</sup> December 9pm

Week no.	DECEMBER '20						
	M	T	W	Th	F	S	S
19	30	1	2	3	4	5	6
20	7	8	9	10	11	12	13
21	14	15	16	17	18	19	20
22	21	22	23	24	25	26	27
23	28	29	30	31			

Week no.	JANUARY '21						
	M	T	W	Th	F	S	S
23					1	2	3
24	4	5	6	7	8	9	10
25	11	12	13	14	15	16	17
26	18	19	20	21	22	23	24
27	25	26	27	28	29	30	31

Professional Studies (EPGS719) Submission Date  
22<sup>nd</sup> February 9pm

Week no.	FEBRUARY '21						
	M	T	W	Th	F	S	S
28	1	2	3	4	5	6	7
29	8	9	10	11	12	13	14
30	15	16	17	18	19	20	21
31	22	23	24	25	26	27	28

Week no.	MARCH '21						
	M	T	W	Th	F	S	S
32	1	2	3	4	5	6	7
33	8	9	10	11	12	13	14
34	15	16	17	18	19	20	21
35	22	23	24	25	26	27	28
36	29	30	31				

Developing Subject Pedagogy (EPGS710)  
Submission Date  
19<sup>th</sup> April 9pm

Week no.	APRIL '21						
	M	T	W	Th	F	S	S
36				1	2	3	4
37	5	6	7	8	9	10	11
38	12	13	14	15	16	17	18
39	19	20	21	22	23	24	25
40	26	27	28	29	30		

Week no.	MAY '21						
	M	T	W	Th	F	S	S
40						1	2
41	3	4	5	6	7	8	9
42	10	11	12	13	14	15	16
43	17	18	19	20	21	22	23
44	24	25	26	27	28	29	30
45	31						

Practical Teaching 2 (EPGS618) Submission Date  
25<sup>th</sup> June 9pm

Week no.	JUNE '21						
	M	T	W	Th	F	S	S
45		1	2	3	4	5	6
46	7	8	9	10	11	12	13
47	14	15	16	17	18	19	20
48	21	22	23	24	25	26	27
49	28	29	30				

Week no.	JULY '21						
	M	T	W	Th	F	S	S
49				1	2	3	4
50	5	6	7	8	9	10	11
51	12	13	14	15	16	17	18
52	19	20	21	22	23	24	25
1	26	27	28	29	30	31	