

# Ogden Trust Teach Physics: The Derby High School

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- **Mon 18/06/2018:** Today was the first day at the school. There are two other interns, so we will be able to help each other and share different teaching techniques and experiences. After an introduction on our duties by our teacher mentor, he explained to us the first task for the day. The following day was the Great Science Share in Manchester and some students were going to be doing some “science busking”. The rest of the morning we rehearsed the tricks and showed them to the students. Since it involved interacting with people, a lot of them were very shy at first. In terms of explaining the science behind it, they were surprisingly really good. Even though it took them a while to understand and memorise the information they had to deliver, they managed to do it well. Nevertheless, sometimes it was quite frustrating because you would have to repeat some information multiple times before they manage to grasp it.
- **Tue 19/06/2018:** Today we were at the Great Science Share. We first went to the museum and the kids were very interested. It was sad that a lot of them had not been there before and they were reading the signs and paying attention. At the GSS, they were very shy at the start and I had to introduce the trick to the public and then they would do it. I tried to get them to do everything themselves but if I did, they would not talk to anyone. They were very mature when explaining the physics even though they got very nervous sometimes.



- **Wed 20/06/2018:** Today was the first day of classes. I had a form allocated and I had to go to the registration every morning. Today they did a numeracy test, which is really good because it gets them to think and settle down from early in the morning. Then, I went to a year 9 class; even though the teacher was well organised, the class was impossible to handle. Some students were very badly behaved which meant that the students that wanted to do some work could not do so. The kids were asking me a lot of questions and making personal remarks, which I decided to ignore or not reply to. There was a theory and an exercises part, but it was very difficult to carry on with them because they were too distracted. I helped the pupils who were interested and willing to work. At some point they were also fighting and I had to take responsibility and separate them.
- **Thu 21/06/2018:**  
Another class, very different, was ICT with year 7. They were quiet and listened to the teacher give the instructions for a test. The teacher made a lot of very positive remarks at the end of the class, encouraging the class to keep up their good work and tell them that he was very proud of them.  
Today we had Nature Club after school. This is a club where students from different years get together do so some nature related activity such as taking care of the garden or making bird food. Today they were collecting samples to see them under the microscope. They were all very motivated and enthusiastic. Some of the kids were very quiet but we realised that they had family issues and they needed more attention in school. It was surprising to see how much these kids know, often more than us. It's really good that the Nature Club has managed to organise so many things!



- **Fri 22/06/2018:** Today in the registration, it was interesting to see how one of the students has evolved from being very rude the previous day to cooperating with the teacher and being polite. This was also due to her parents cooperating. She must have realised that her behaviour was not acceptable.
- **Tue 26/06/2018:** Today it was the induction day for Year 6 pupils and a very interesting event happened. I had to help out in one of the demonstrations set for the pupils and one of the very problematic students from one of the other classes was sent to help out as a punishment. She kept complaining about it, and trying to run away but eventually we managed to get her to help. It was very surprising to see that she was extremely well behaved and helpful, trying her best to give a good impression and taking safety measures into account with the Year 6 students. She would realise when something was done wrong even before me and she was very polite to all the students. This made me think that maybe this sort of tasks would benefit the students much more than detentions or other disciplinary measures, because it gives the student some responsibility and make them feel useful.  
The next lesson of today was a year 10 class, the first one with this group. The group was well behaved and showed more maturity than the younger groups, as it would be expected. In this lesson we continued the work from previous weeks in optics. It was an easy lesson to do, since the students were well behaved. However, they did not understand some of the very easy concepts, which I thought was interesting since they were a good group.
- **Wed 27/06/2018:** Today I attended the practical that one of the other interns was delivering. It was good to see that the class respected her because sometimes this group is very chatty and hard to teach. She kept them engaged and busy during the experiment, which was very positive. At the start, there was a short introduction about

the theory and what would be expected from the experiment, where she asked some of the students what they thought and most of them gave the right answers. They performed the experiment well and got the expected results, which was encouraging. Today as well, we had our first session of an lunchtime club that me and the other two interns created: Hispanic Club. It was very disappointing to see that nobody turned up today but we thought that it was not very well advertised so we'll work on this next week.

Lastly, today I attended the staff meeting after school. It was good to see what was being done in the school in terms of education and curriculum updates. A lot of bureaucracy work is involved which I don't think many teachers enjoy doing.

- **Fri 29/06/2018:** Today, I was teaching for the first half of this lesson. I started off by revising the topics they had been covered in the previous days, but in a slightly different format. I thought they were going to have no problem with it, but they struggled quite a bit with the revision exercises. Their main problem was not being able to link their knowledge together. They knew very well the names and the products of the reactions independently but when they were asked to read the reaction based on the formula that they knew separately, they got really confused. I had to lead them through it and eventually they managed to see the connection and could do all the exercises. However, this took longer than what I expected so I had to speed up the last part introducing the new experiment for the day and also left out some exercises that I had planned for them at the end. Next time, I need to bear in mind that if I am doing more complex things, I need to allow more time for it. I had planned some introduction for the practical afterwards, but the teacher quickly went over the material in a way that the pupils had seen it before and they were able to recognise it better. This was interesting because the way I had it prepared was very different to how the teacher had thought of it, his being much more fun and relatable for students. Overall, I was very happy with my performance, as the students respected me and I was able to keep control of the situation, without getting overly nervous. I also got them to think in a different way and do slightly harder activities, which was a very successful challenge.

### Exercise:

- (a) Iron, (b) Copper sulfate, (c) Iron sulfate, (d) Copper



- Copper + Gold nitrate  $\rightarrow$  \_\_\_\_\_ + \_\_\_\_\_

- \_\_\_\_\_ + \_\_\_\_\_  $\rightarrow$  Magnesium Chloride + Iron

- What is the reaction between Magnesium and Copper Chloride?

- **Tue 03/07/2018 - Thur 05/07/2018:** This week we did not have anything extra to do, just the usual lessons and activities. I have been working on some department

resources that we have asked to produce, involving GCSE material. It consists of a set of slides to improve literacy in the curriculum.

P7.2.2 Energy Analysis - Electric Current

$E = mc\Delta T$

Electric Kettle, Heating, Current Flow, kW/h, Energy Transferred Electrically, Mains, Battery

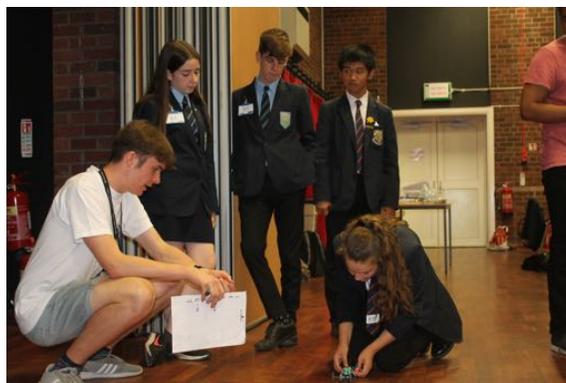
This week, Hispanic club was really successful so we are really proud! The pupils were really enthusiastic and I think they learnt a lot.

**SPAIN AND THE UK: LET'S COMPARE THEM!**

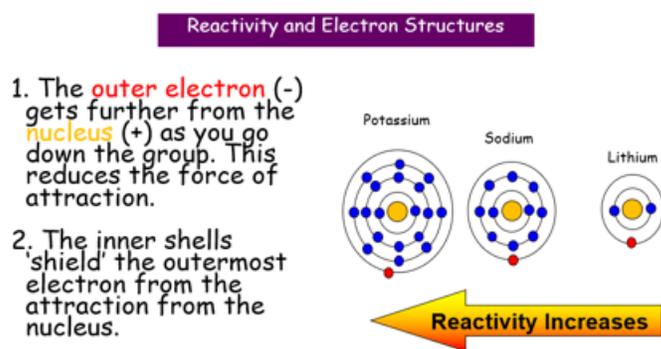
- ❖ Spain is **3 times bigger** than the UK
- ❖ **46.6 million** people live in Spain, compare that to the number of people in the UK (65.6 million)!
- ❖ In Spain we have **Euros** instead of pounds

Odia...	No me gusta[n]..		
Me Gusta[n]..	Me Encanta[n]..	<i>Las patatas fritas</i>	<i>El Agua</i>
			
		<i>La fruta</i>	<i>El zumo</i>

- **Fri 06/07/2018:** Me and the other intern were helping out with the preparation for a speaking test in a French class. We asked the students individually some questions that they should have previously revised and gave them some feedback on them. Sometimes, the students were very honest and told us how they felt about it and if they had to revise more. Some students lacked confidence, and we tried to make them feel more comfortable and less nervous. I think it was really beneficial for them, because they got to practise with someone other than their teacher, which is always really good experience in preparation for their GCSE exams.
- **Mon 09/07/2018:** Today we went to the Bury STEM Challenge with Year 8 and 9 students. The plan for the day was to do 3 activities in a team of pupils from other schools. The first one was very difficult, I found, as they had to build a race car. However, all the groups managed to create one, which was really encouraging because you could see how motivated they were. They even came up with ideas that I would have never thought of! In the following challenges, they became more confident and worked better in teams towards the prize. It was disappointing that our school did not get any prizes in the end, but the pupils did their best and I was really proud of how hard they tried.



- **Tue 10/07/2018:** Today I had a lesson with my Year 9 class. I was worried because this is a very difficult class, with some pupils who never pay attention. At the start of the lesson I handed the students over some sheets to be completed later on in the lesson. The teacher recommended me to do a starter activity based on the lesson from the day before. Even though I knew the material, it was hard to know what the students had done previously and how to make it relevant to the topic I was about to explain. The first part of the class was rather messy, as there was a demonstration involved and the pupils were not keen. The pupils were disappointed that they did not get to do anything themselves so maybe it would have been better to let them do a simpler demonstration on their own, because they are certainly capable of it. This took longer than we expected because they did not want to pay attention. I took over and they were surprisingly quiet. I managed to go over all the material I was supposed to cover in a relatively short period of time, because they seemed to grasp all the concepts really quickly. I had to come up with new things to tell them on the spot. In the end, I think I managed to deliver the lesson really well, and the teacher congratulated me, both of us being surprised by the behaviour of the students. I think I could have improved it by letting the pupils think and trying to come up with an explanation for the phenomenon that I was explaining first.



- **Wed 11/07/2018:** We had Hispanic club during lunchtime, which was really good today. We had a lot of people coming and they learnt about animals. One of the

other interns had brought some egg shells to show the students some of the Mexican Easter tradition, and they found it very interesting and fun. It's very encouraging to see the pupils so keen on learning about Hispanic culture. They were also really keen on learning new vocabulary and they kept asking a lot of questions and how to say different words in Spanish. I feel that they have made a lot of progress over the past weeks and some of them said that they were going to be really sad that Hispanic club will not be on next year!



- **Thu 12/07/2018:** Today we had the Ogden Physics Olympiads, hosted at our school for Year 4 and 5 pupils. The day was very intense, and today I've realise how much more energy you need to deal with primary school kids. I was in charge of 2 of the challenges: building a tower out of spaghetti and marshmallows and building a stomp rocket. I was very impressed that they managed to work in teams, plan, coordinate and build the towers and that they followed the instructions carefully. At times, however, the more capable pupils would want to take over and not leave any space for the others to help or to give their own ideas, so I had to convince them to work in teams. In the second challenge, the younger students managed to build the rocket faster and better than the older ones, where a lot of pupils were just saying that they could not do it, if they did not get it right the first time. Overall, it was interesting to see the different behaviour between primary and secondary school pupils!



Today it was a very busy day, as apart from taking part in the Ogden Olympiads, we went to a Garden Party organised by the school, to open some new facilities. We helped with the science busking and the science stall for about two hours in the evening. It was a great event, with lots of activities and a great attendance!



- **Fri 13/07/2018:** Today we delivered our first careers presentation to my Year 9 class. This was jointly done with the other 2 interns. We divided the talk into 3 parts, each one led by one of us. We first got them to sit down and to start writing down on a white board the different skills and attributes of a scientist. We collected their answers and put them on the board and Julia (one of the interns) lead the section, putting special stress on the importance of creativity in science. We wanted them to know that there are a lot of transferable skills that you can learn from doing science, as well as the subject specific ones. This was fine, but I think we need to make it a bit more interactive for the next session and also adapt the content more to what the students have suggested. My part was about examples of science applied to different fields, so I picked Virtual Reality, because I think it's a very interdisciplinary topic and the students will be interested. I got them to watch a video and to lead a discussion on the different disciplines that would be involved in creating the final product. I think the students really enjoyed this, because they learnt about VR but also managed to pick up on the fact that you need to work together with many different people and

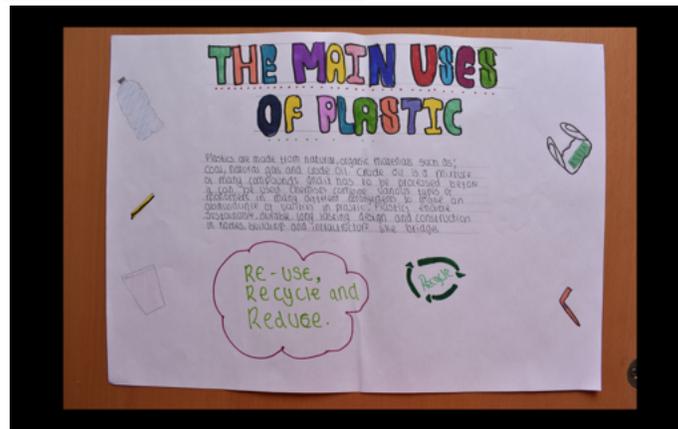
you thus need all the skills that we mentioned earlier to do so. The third part involved going over some careers paths based on a questionnaire we had handed them over the previous weeks. I think this was really beneficial for them, as many didn't know their right career path to what they wanted to do or the subject choices for A-level. At the end, we had some spare time, so I showed them a video of new materials and their uses, which they found interesting and fun. Overall, I am happy with how this went, they were not as interactive as we would have wanted them to be, but for the next careers talk, we'll improve on this. The teacher who was in the room with u also gave us the same feedback, but overall he said that it was really good too! To finish off, we also gave the students another questionnaire so that we could compare answers with before the talk.

Today I had another lesson to teach: PSCHEE with Year 8 with the topic Plastic in the Oceans. As a starter I gave them some sheets to fill in about types of plastic and what they know about it. I asked for a volunteer to write down the main plastic types that they mentioned, as I thought this would keep them more engaged. The main activity of the lesson was to make a poster about plastic. The class was split up into groups of 4 people and each group was assigned a different topic. Two members of the group had to do research on the laptops and the rest had to work on making and decorating the poster. They managed to find the relevant information, even though sometimes they would have trouble knowing what to look for. They finished the posters in time, even though at the end they were a bit rushed. They then had to present it to the rest of the class. This was probably the hardest part, since more of them are not used to speaking in public. At the end, we quickly discussed what they could do in order to reduce the amount of plastic they produce and how they should recycle more. I think it was a really successful class, as the students were really engaged and cooperative. The teacher also congratulated me, so I was really proud of it!

## THE LIFE CYCLE OF PLASTIC - Make a poster!

- How is plastic made? Group 1
- Main uses of plastics. Group 2
- Terrestrial Plastic pollution and risks. Group 3
- Oceanic Plastic Pollution and risks. Group 4
- How are animals/plants affected by plastic pollution. What are the main species affected by it? Group 5
- How is plastic recycled? Group 6

Groups of 4: 2 people do the research, 2 people draw/decorate



- **Mon 16/07/2018:** Today we did our second careers presentation. This time, we put into practise the advice we had been told from the previous talk on Friday and tried to make the session more interactive. We got two volunteers at the start to write down the skills on the board at the start. I think this worked better. The Virtual Reality bit was made a bit longer and also more interactive. Instead of telling me the skills and knowledge that someone working on VR would need, I got them to work in groups and discuss it amongst themselves, while we were going around seeing what they thought. I then asked for an input from each group to put in common what they had discussed. I think this part went much better than the other day, as it was much more interactive and I think they took more from it. The main problem of this session was that the pupils were not very engaged and were talking and laughing at times, which was a bit discouraging.
- **Tue 17/07/2018:** Today we had Experience Day at school. I was involved in the engineering activity and we had a group with a wide range of ages. The start of the day was an introduction on what being an engineer involves. It was not surprising to see that a lot of the pupils had a lot of preconceptions about who can be an engineer. We got them to do several activities on engineering jobs and qualities, which seemed to work well. Alongside this, we showed them a few videos. They were split up into groups of different ages and abilities. Throughout the day we worked in different challenges to develop problem solving and team working skills. The teacher who was doing the activities was really engaging and I learnt a lot from the attitude he had. In the last

couple of hours, we were working on building a contraption with several kits to build individual machines. There was a mixture of opinions about this, but in the end, they managed to come up with something that worked! It was a bit disappointing at times, because me (and the other two interns) had spent a lot of time preparing this and getting all the material together, and some of the pupils didn't really appreciate the effort everyone puts into organising an activity like this one. But in general I think the day was really successful!

- **Conclusion:** These 5 weeks at the Derby High School have been an eye-opening experience. When I first arrived I was very worried about working in a school, but I have really enjoyed it! Even though it was challenging at times, I have grown as a person and learnt a lot from the teachers and from the lessons I delivered, giving me skills not only useful in education but in many other areas.

## Lesson Evaluation

This lesson was delivered to a Year 8 group and the topic was displacements reactions in Chemistry. The class was split up into two sections, the theory and revision part and the practical part. I was in charge of the theory part due to health and safety reasons, and the teacher took over for this part. This was my first ever lesson and it was in week 2 of the internship, so I was quite nervous. However, the class was well behaved so that helped a lot. At the start, since I was quite nervous I tended to speak quite quickly also because I was afraid of not being able to cover everything, but after I calmed down, I managed to speak at a good pace. I based my class in a Power Point presentation that I had prepared and I was trying to follow it, however, at parts I had to take initiative and skip or modify parts of it. The exercises I had prepared were based on what the students had learnt in the previous lessons that I had been attending. They found it really hard, I think at the start because I was doing the exercises in a different way to what they are used to, even though I had not really realised this, because I thought that since it was a similar format, they would understand it equally well. After I explained the new way of doing the exercises and how it all linked together -this is what they were lacking, links between different sections-, they managed to get the exercises right, so I was really proud that they finally understood it! The timing was a bit tight, because they spent a lot of time in the revision part, which I thought would be straightforward enough, but it wasn't, so I had to rush a bit the theory behind the practical and another slide with exercises I had prepared for this at the end. However, this was fine, because it turned out that they knew the theory of the practical quite well already. Overall, I am quite happy with how the lesson went because it was my first one, and I managed to get the pupils to think in a different way to what they are used to, which will be very beneficial for them. I think I dealt well with the problems that I encountered regarding the pupils not being able the questions at first, since I explained the material and made good analogies. For next time, I will try and stick to the timings better, by not being restricted by the initial plan of the lesson and improvising a bit. I will also try and be less nervous, which hopefully be easier next time because I'll have more experience in the classroom.

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