



December 2009

Welcome to a new format of Instructors' newsletter

Until now the newsletter has been prepared by the RSGB staff at Bedford and would include items from the RSGB Amateur Radio Development Committee, RCF Examination Committee and RCF Quality Manager.

John James has moved on to pastures new and we wish him well. That leaves Julie single handed although ably assisted by others at Bedford as much as they can.

Production of the newsletter has moved out of HQ and is being handled by the EC and ARDC. It is also proposed to increase the frequency of the newsletter and add items of general assistance to instructors. It is proposed to open up the newsletter to allow training items and questions to be submitted by instructors.

This is not intended to replace the very effective Tutors' reflector on Yahoo Groups which all tutors who have attended a Train the Trainers course are invited to join and others by invitation from Brian Reay the chairman of the ARDC. That reflector remains the best route for quick replies from fellow tutors which includes the TtT presenters but remains an informal medium.

This newsletter will be used to make or repeat and give the background to formal announcements, but articles and other items are, of course, the views and opinions of the individual contributors and may not be RSGB or RCF policy.

Moratorium on Producing Examination Papers

The April 2009 Tutors' Newsletter announced that in February and August 2010 there would be a moratorium to allow the question banks to be updated.

You are reminded that this moratorium will go ahead as planned and the system will be off-line from Monday 1 February 2010 until Friday 12 February 2010.

Requests for papers for examinations scheduled prior to 1 February must be received with the usual minimum of 10 clear working days notice. Requests for papers on any date in February must be received by Friday 15 January so that they can be produced before the system closes on Friday 29 January. Any requests received during the closure will be filed in order of receipt and will start to be processed from Monday 15 February. It must not be assumed that these will be despatched in time for examinations prior to Monday 1 March.

Early requests for exams in late January and early February will be much appreciated as it will help smooth out the bulge in requests in the last two weeks.

A similar moratorium is planned from Monday 2 August until Friday 13 August 2010.

Exams Department, 12 November 2009.

Advanced Exam dates 2010

Tuesday 2 February at 18:30, Wednesday 21 April at 18:30, Thursday 17 June at 18:30, Friday 6 August at 18:30, October TBA, Monday 22 November at 18:30. Any queries please contact Exams Department on 01234 832700 or e-mail rce.dept@rsgb.org.uk

Revised Record of Achievement form

The reprinted Foundation Record of Achievement form now has a place for the issuing tutor to sign and enter their registration number.

This allows a supervising full licensee to check it is valid and may supervise *operation* of his Radio Equipment under licence clause 3(3)(a) and not just speak in accordance with 3(4) or 3(5)(b).

It also allows a tutor presented with a partially completed RoA to confirm its validity and confidently sign at the bottom when fully completed.

Ideally the issuing tutor will enter the student's name on the Instructors' Practical Assessment Record Sheet at the same time as issuing the RoA. He/she will then have a record of who the RoAs have been issued to and which items have been completed. The candidate's new tutor should check the validity with the previous tutor and a similar check can be made by exam only centres such as the RSGB Convention exams.

Train the Trainers

If anyone is interested in taking part or requires further information then please contact the Chairman of the Amateur Radio Development Committee via email.

ardc.chairman@rsgb.org.uk.

Sessions have now been held in most areas and all who have attended have found them useful. The sessions tend to be demand-led, so it is important to flag up requests.

ARDC

Feedback from Inspection of Examinations

The retirement of Colin as the previous RCF Quality Assurance Manager had caused a reduction in inspections this year but we now have a new Quality Manager, Jeff Smith. Many of you will know him well as a Past President of the RSGB. Jeff has had a career in law enforcement and education and is well placed for the QM role.

His job is not to carry out inspections, although he will do some, indeed has done some already; rather it is to organise inspections across the country.

The reports from inspection so far indicates that most clubs are doing sterling work, both in training and examining their candidates to a good standard. They would be mortified to think of any form of underhand or careless behaviour. Regrettably however inspections and analysis of results has not always shown matters are as they should be.

Actual Incidents.

Actual incidents arising have resulted in the number of candidates having their examination invalidated reaching double figures this year, an unprecedented result, yet one we are confident is correct. Sadly the investigations had concluded that there were cases where a false result was intended. That exam was invalidated and periods of suspension in either sitting or holding examinations were awarded. Some of those went to appeal and in all those cases the original decisions were upheld.

In many cases there was no intention to obtain an improper result but the conduct of the examination left something to be desired. It is quite likely that those conducting the examination just did not see the purpose of some of the rules and regulations. They had no intention to cheat, no cheating took place and the candidate fairly obtained the result they deserved, pass or fail.

So why are those rules there?

Two core reasons:

The RCF acting under the terms of the memorandum of understanding with Ofcom has to be satisfied that the outcome of any examination is an accurate reflection of the competency of the candidates. Having a 'pass' in any RCF examination entitles the candidate to apply for a legal document; a transmitting licence.

The protection of the club. Strict adherence to the rules gives protection to a club in the event of an allegation of sharp or unfair practise being made against them. Protecting the good name of the club is considered to be as important as maintaining the fairness of the examination.

The RCE Department and EC receive a number of allegations of irregularity. Some of these turn out to be without merit and potentially with mischievous intent. Others do turn out to have some substance but fears of ill intent on the part of the club alleged to be engaged in malpractice turn out groundless. The difficulty being that there were a number of breaches of the rules, they probably didn't affect the exam outcome, but it was not possible to be sure.

Not showing people that the exam packet is sealed and only opened in front of the candidates leaves room for suggestion that it had been opened beforehand. A moment of theatre showing someone else the sealed packet ensures several people can attest to its being sealed.

Allowing candidates back into the room before marking has finished and papers sealed away risks candidates applying unfair pressure on the markers and others making allegations of mischief that the club cannot disprove. The yardstick is **seen** to be fair, not just happens to be fair.

Where there is reason to suspect malpractice and clear breaches of the rules of the examination then it is quite possible the examination will be deemed unsafe. If unauthorised people have entered the exam room or candidates re-entered early and no mention of this is recorded on the irregularity report then wilful breach of the rules is evident. The person entering, despite the No Entry notice, must be promptly shown out and the time and details reported as an irregularity. Their initial entry might be unavoidable, but failing to show them out and failing to record the event constitutes two deliberate breaches of the rules. If the event had been recorded then there is a presumption of honesty. Not recording it can only suggest dishonesty. That is playing into the hands of those who would make mischievous allegations.

These rules are the same as for other public examinations. In a school or college breaches of the type witnessed this year would have led to staff suspensions, probable loss of employment and very serious loss of credibility for the institution concerned. It would be on the news and in the papers. Where a candidate was knowingly part of the irregularity then that and possibly all GCSEs or A-levels sat that year would have been forfeit. The examination boards do tell each other about the more serious offences.

These rules are there for your protection and they take no extra time at all to follow. Seriously, please do so. Please cultivate a habit of following them. The candidates will notice a professional and quietly controlled approach and will recognise a well run club when they see one. A good reason to join!

RCF Examination Committee.

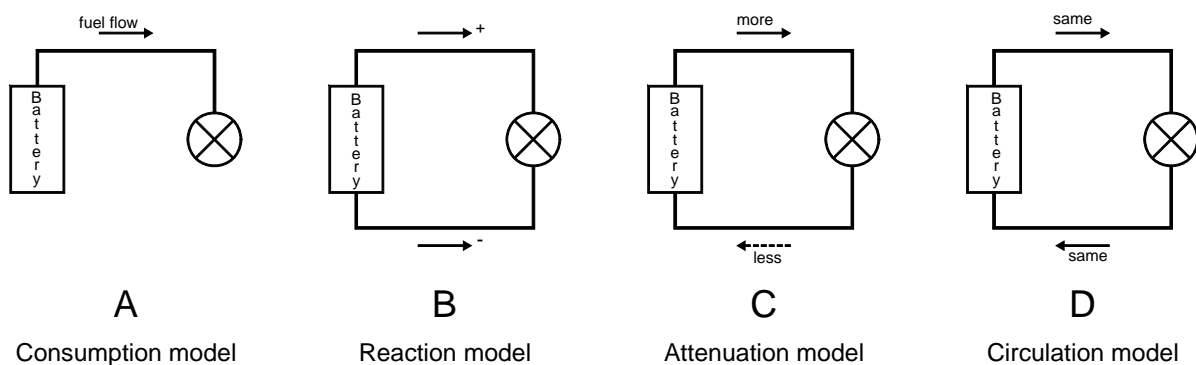
Teaching Electricity

Extracted and summarised from a paper “P.G.C.E. Key Ideas in Science” by Prof. Robin Millar, January 2007. Some additional material from a variety of sources.

Research has shown that students, particularly school age students have an assortment of preconceived ideas about electricity and how it works.

Most domestic devices such as the TV or a kettle are connected by a single cord to the plug and socket. That is also true of a gas fire, a single pipe feeds it. The gas or electricity are a fuel to make the device work. The true nature of what is happening is not visually obvious.

Models of an electric circuit.



These models were developed by Prof. Robin Millar

In A the electricity flows from the battery, the source of the fuel, to the lamp where it is used or consumed in producing light. Having been consumed there is no need for a connection back to the battery.

In B there are two types of electricity (a positive type and a negative type?). Both emerge from the battery and react or ‘fizz’ in the bulb to produce light.

In C some of the electricity from the battery is used up in the lamp and the remainder or ‘spare’ electricity returns to the battery.

In D the electricity squeezes through the thin filament of the lamp causing it to get hot, and then returns to the battery. This is a fair approximation to the truth.

Before students will accept the agreed description, they have to let go of the false impressions they have got. Adults will think more rationally and may exclude some of the models above as much less likely. They will also have more life experience and will have seen three pins on the plug. One is a safety earth so the other two must do something. Adults are also pre-disposed to accept that the tutor does indeed know what they are doing. Children are more inclined to simply disbelieve the teacher if what is being said does not fit with their existing (wrong) understanding.

That can give us a problem. We may first have to identify and dispel these false notions. For younger students simply telling them the correct answer is insufficient. We need to construct the explanation, perhaps using them as the source material, by continuously asking questions until we get the required answers. That way the students have evidence to support the correct explanation and, hopefully, disprove any wrong ones. If a student insists on clinging on to a

false model the tutor can try to devise a situation which the student knows the answer to from experience, but application of the argument or belief held by the student leads to a different answer. The student now has a problem of their own making and is forced to reconsider their understanding.

One feature to get across very early on is the continuity of current. The *same* current flows everywhere in a series circuit. With two bulbs in series some electrical energy is transferred to heat and light in the first bulb and some in the second. The current is the *carrier* of energy. An analogy of a central heating boiler may help. The water is merely a carrier of the heat energy, picked up in the boiler and given up to the room in the radiator.

At this point one can ask how to heat two rooms. There are two possibilities. More water and split it between the rooms; or, much hotter water so there is sufficient energy to heat both. Note that in this model making the water move faster (more current) does not work with the same radiators. For that to work we would need a bigger radiator to allow more heat transfer. Later you can show that equates to a lower value resistor, allowing more current (energy transfer) for the same electrical potential (energy per volume of water).

You may also have noted that the concept of PD (or voltage) has yet to be mentioned. Once the concept of energy transfer has been grasped then PD can be introduced as the amount of energy in a given quantity of electricity.

Without that concept it is difficult to really explain *why* $V \times I$ gives the power supplied or dissipated.

The question *why?* is not asked in any depth until higher level exams, but it is much better to start along the correct road from the very beginning than expect the students to make a sideways jump halfway up the ladder.

Alan GOHiQ