Return of the Moon Man

Context

The Coming of the Electric

The first lines of 'The Return of the Moon Man' read:

> 'A.D. 2500
> That was the year they brought the Electric to Pen-y-Craig Farm.'

Grandfather Griffiths, we are told very soon, had been against having 'the Electric' in the house and had only agreed to have it installed after what had clearly been a long battle.

> '"Well," roared Grandfather. "There's your Electric. But don't think that because you've talked me into this you'll talk me into any more of these devil's machines."

Grandfather Griffiths probably didn't get any choice as to the source of the electricity production, and it probably came from the National Grid* (or whatever takes its place by the year 2500!). However, according to the Centre for Alternative Technology (CAT) - which also happens to be based in Wales - there are a number of present day options that he might have been able to choose from. Look through the following Information Leaflet produced by CAT and decide which alternative might have been his best choice. Remember that Pen-y-Craig is a farm in a mountainous area of a wet country which has less than its fair share of sunshine.

*National Grid (or 'the grid') is the network of electricity supply in the country.

Electricity from Renewable Sources

For most of us a small-scale renewable electricity system is not going to be economic or practical. Electricity through the grid is relatively cheap, compared to the costs of setting up a wind or hydro turbine or solar electricity (photovoltaic) panels. However we can all power our homes and businesses with renewable energy, through the grid. Not only does it lower our global impact, but it also shows the government that we want to support non-polluting forms of energy.

Renewable electricity through the grid

You can now buy your electricity from any supplier, and many main-stream suppliers offer options which either guarantee that they buy a corresponding amount of electricity from renewable sources (green tariffs), or invest money into research or setting up renewable energy projects (green funds). Changing your supplier won't make any difference to the way your electricity comes to you through the grid, or the way you are billed, but it will lessen the amount of greenhouse gases and global warming that you are responsible for.

The energy sources that the government counts as renewable includes wind, solar, some hydro, wave, tidal and biomass. It also includes energy from waste, produced by the incineration of rubbish or from methane collected from landfill sites. Some people see this as a reasonable way of making best use of resources. Others fear that it creates an infrastructure which encourages waste and discourages waste minimisation and recycling, and that incinerators can have potentially hazardous emissions. Suppliers will be able to tell you if any of their energy is generated from waste

SMALL-SCALE RENEWABLE ELECTRICITY SYSTEMS

Although having your own renewable electricity (RE) system probably won't be economically feasible if you already have a grid connection, there are situations where it will make a lot of sense. Photovoltaic (solar) panels and wind turbines are often used to power signs on motorways, the lights on harbour buoys or to provide power for boats, caravans or remote houses where a grid connection would be costly or impractical. And even if you do have a grid connection, if you can afford to, you might want to generate some of your own power.

Costs

The cost of a system will depend on what you want to power. As a very general guide, the cost of a small scale renewable energy system can range from €1000 to €5000 per kW depending on the size of the system. Photovoltaics will cost in the region of €8000 - €13000 per kW.

Hydro Power

Hydro power is, of course, very site specific — you need a good water source, and you will have to obtain an abstraction licence from the Environment Agency. A good hydro site depends on the 'head' of water (the vertical drop) and the flow rate. You can get an idea of how much energy you may be able to get from a water source by multiplying the flow (in litres per second) by the head (in metres) by the constant of acceleration due to gravity (which is approximately 10). Divide your answer by 2 to take into account inefficiencies and losses, and you will have an estimation of the potential power generation in Watts. Our Micro-Hydro Power Factsheet explains this in more detail. Low head sites (just a few metres or less) are often not viable. Old mill sites are often difficult to use for generating electricity because they have a low head and are designed for high torque (good for mechanical work) rather than high speeds, which is what an electricity producing turbine requires.

Wind Power

A wind power system is, of course, also very site specific, and the ideal site will have a regular strong wind and no obstructions such as trees or buildings to cause turbulence (so they're not very good in towns). It's advisable to monitor the site over 6 — 12 months in order to ascertain wind speeds etc. before investing in equipment, and you will usually need planning permission.

Solar Electricity

Photovoltaic cells (PVs) use light energy to generate electricity. Their output varies with the intensity of the sunlight and modules are therefore rated in kilowatts nominal peak (kWnp), which gives their output in optimum conditions - i.e. a bright sunny summer's day. They should not be confused with solar water heating panels which use solar energy to heat water directly (not with electricity). PVs are particularly well suited to sites that are only used in the summer or where other power sources, such as wind and water power, are more plentiful in winter than summer. They can also be used to power appliances like radios, battery chargers, garden lights and fountains.
Although start-up costs are higher than other renewable technologies, PVs have key advantages: there are no moving parts to fix so they are relatively easy to install and maintenance on a day to day basis is straight-forward; they can be sited in urban areas and are not restricted in the same way wind and hydro-power systems are; they can replace other materials such as tiles and facades.

Now answer these questions.

1. Which source of renewable electrical power……..
   a) requires gravity as an element?
   b) is the most expensive to set up?
   c) is least effective in the winter?
   d) requires open land?
   e) has potential which can be fairly easily calculated in advance?
   f) requires the building of large structures?

2. Choose the best answer A,B, C or D to complete the following statements according to the Information Leaflet.

   1. A 'green tariff' will ensure that
      A. your electricity will come from renewable energy sources.
      B. renewable energy sources are partly used to supply the grid
      C. your electricity bills will be lowered
      D. money is invested in renewable energy schemes

   2. Renewable energy produced from waste is controversial because
      A. dangerous methane gases are produced
      B. it requires large incinerators
      C. it is an alternative to recycling
      D. it discourages people from being careful about waste

   3. If you are already connected to the National Grid you
      A. can easily change to renewable electricity
      B. shouldn't change to renewable electricity
      C. can supply buildings in remote places
      D. might consider renewable electricity for additional power

For further information about renewable energy, or to find out more about the work of CAT, use the following internet address: www.cat.org.uk

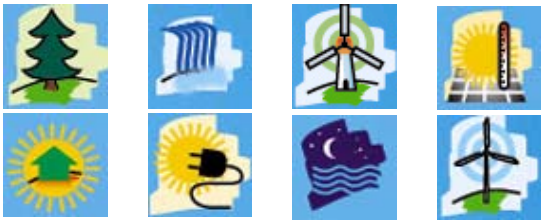
The Return of the Moon Man

Context

Renewable Energy

1. Decide what each of these map symbols represents by examining the list given.

Symbols



Biomass
Hydroelectric turbine or water wheel
More than one type of renewable energy in use
Photovoltaic panels
Solar water heating panels
Tidal power
Windmill
Wind turbines

2. How many different renewable energy sources can you locate on this map of South Wales?

3. You will have to put the missing sentences (A-E) into the correct place when reading this text. However, there is one extra sentence that doesn't fit anywhere.

Guide to Renewable Energy Sites in Wales

At the start of the 21st century, Wales is one of the world's leading developers of clean and sustainable energy. With some of the best wind and water resources in Europe, it's not surprising that Wales is tapping into these freely available renewable energy sources.

This website demonstrates the wealth of renewable energy schemes operational in Wales as a guide for those who would like more in-depth information, or to visit the schemes. Consult the map to locate the sites.

Water Power

Over a hundred years ago, engineers began to construct hydro power schemes on the upland streams of Wales. With the arrival of the UK electricity grid in the first half of the 20th century, the smaller of these schemes fell into disrepair. (1)_____. Nowadays, some of the old schemes are feeding electricity into the National Grid having been rehabilitated, with state-of-the-art electronic control systems incorporated to improve their efficiency.

Wind Power

In the last 10 years or so, wind power has really moved on as an industry. The first large-scale wind farms appeared here in the early 1990s. Since then, the turbines have become larger, more economical, much more efficient and quieter.

(2.)_____. Wales - like Scotland, Cumbria and Cornwall - has some of the best wind resource in Europe. Germany and Spain, however, are developing windfarms - and the manufacturing and service industries that support it - at a much faster rate than anywhere in the UK.

Solar Power

Both electricity and heat can be provided by the sun. Photovoltaic (PV) modules are used to turn the sun's rays directly into electricity. (3)_____

Solar power is also used to heat water for commercial or domestic purposes via solar collectors that are usually roof-mounted. Again, there are several examples of this technology on show around Wales, and it works surprisingly well, even though Wales isn't a particularly sunny country.

Biomass

A well established technology for the provision of heat and power in many European countries, such as Austria and Sweden, biomass is only beginning to catch on in Wales. (4)_____

Over the next 10 years it seems likely that the use of biomass will grow substantially

A. In really windy locations, wind power is now competitive with other non-sustainable but more conventional methods of electricity generation.
B. The power generated is easily distributed by means of a local network of boosters.
C. The new National Botanical Garden of Wales has installed a biomass system which is providing heat for their green house.
D. Larger schemes were built, however, to feed electricity into the grid.
E. There are several PV installations operating in Wales, the largest being a 12kW array powering the Centre for Alternative Technology, near Machynlleth.

4. Here are some questions that require some discussion.

5. Group Activity

Some friends of yours are going to move, for three years, to the Republic of Ludditia, where an excess of technology is not welcome. You friends have a normal collection of household equipment (see their list below), but they are only allowed to take FOUR pieces of electrical equipment with them to Ludditia. Which four should they take, and why? Try to reach a group consensus, but if you cannot, make sure you each defend your own choices vigorously!

This is the list of electrical equipment your friends have made. Which four should they take with them?

Coffee machine
Cooker and oven
DVD player
Electric Kettle
Electric Toothbrush
Food processor
iPad
Microwave oven
Mobile phone
MP3 player
Portable computer
Refrigerator and freezer
Stereo sound system (CD and radio tuner)
Television
Toaster
Vacuum cleaner
Video player
Washing machine

Supplementary Question: *Look at the items you have decided to tell your friends to leave behind. Suggest ways in which they might substitute them without using electricity*.

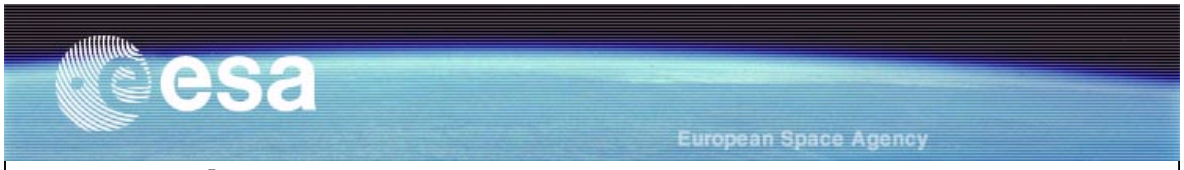
The Return of the Moon Man

Context

Space - Astronaut

One of the Moon Men. took off his great helmet.
'Bit my tongue when we landed sudden,' he said.
'Nothing to what you will bite when you land on the Moon,' said my grandfather.
'That is what I am thinking,' the man replied. 'And that is why I say they can have their old Moon. Back to Golders Green by the first train it is for me.'
The leader took off his helmet at that. 'Go to the Moon one short?' he cried. 'That would never do.'
'I will go in his place,' said Dai my father quietly.
'You go? Never,' roared my grandfather. 'No son of mine shall go gallivanting round among the planets.'

IN THE STORY OF 'The Moon man', the apparent ease with which astronauts could come and go, as they please, is part of the humour of the piece. In real life, of course, things are very much different. What follows is some information produced by the European Space Agency for people who think they might want to become astronauts. Read what they say, and then try to answer the 'true or false' questions which follow.



How to become an astronaut

So you want to fly in space...

Well, it won't be easy. But if you wanted to do something easy, you wouldn't want to fly in space.

The last time a job opportunity was publicised, there were around 22 000 applicants. About 5000 of them had good qualifications, too. But there are only 15 people who are currently members of the European Astronaut Corps. What makes them so special?

Around half the Corps began their careers in military aviation, usually including some serious test pilot experience - the most precise and disciplined exercise of flying skills. Astronauts Leopold Eyharts and Frank De Winne, for example, served as senior test pilots in the French and Belgian air forces respectively. In addition to immense airborne experience, Switzerland's Claude Nicollier, doyen of the corps, has logged more than 5500 flying hours - these 'pilot' astronauts all have strong backgrounds in aerospace science or engineering, and sometimes both.

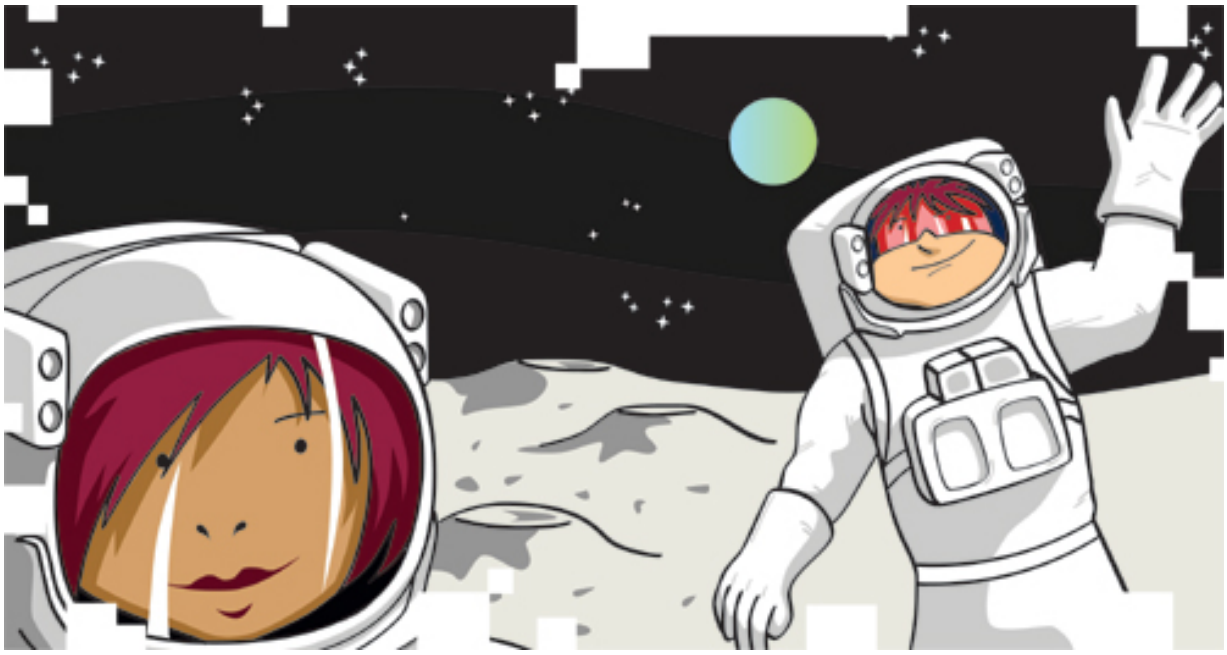
The other half of the Corps are more strictly scientific. Most of them were trained in physics and all have worked in their speciality at advanced university levels. A few - such as Dutch ESA astronaut André Kuipers - have a medical background with strong aerospace interests.

All of Europe's astronauts are marked out by breadth as well as depth of experience, and all of them are physically very fit. Umberto Guidoni, for example, who was the first ESA astronaut to spend time on the International Space Station, is a plasma physicist of international repute. But he is also a reserve officer in the Italian air force, a keen swimmer and a volleyball enthusiast. His fellow-countryman Paolo Nespoli is a distinguished aerospace engineer - but in his spare time he is an enthusiastic private pilot and parachutist, and as a former member of Italy's elite special force, he has little to learn about determination and motivation.

In fact, determination and motivation are the two outstanding qualities shared by all of Europe's 15 astronauts. They are not supermen - or superwomen. But whatever their previous careers, they have all demonstrated levels of patient dedication far beyond the average. For every hour they may spend in space, they know that they can expect to spend hundreds, even thousands of hours in training. They think it is worth it; if you want to join them, so should you.

True, false or don't know?

1. You have to have military experience to be an astronaut.
2. Pilot astronauts are also trained scientists.
3. Half of the astronauts have not got flying experience.
4. Astronauts are profoundly experienced in their fields of study.
5. Scientist astronauts are not required to be as physically fit as pilot astronauts.
6. Astronauts must be patient because of the boredom of the long hours



The Return of the Moon Man

Context

Space - The Moon

> The Moon was well up now, and so near that you felt that if you stood on tiptoe you could touch it like an apple on the tree. Gran looked up at the Moon. And the Moon looked at Gran.
> Now Grandfather was a big man, and I knew she was hoping to see him, perhaps putting up a little tent, or lighting a Primus. But there was no sign of anyone on the Moon's face. And at last, after a long time, Gran shivered and sighed. Then she muttered, 'Round at the back, maybe,' and she turned and carne slowly down the mountain.

Both Gran and the narrator clearly had strange ideas about the moon, as if it was merely an extension of earth. But perhaps they were closer than we might think…….Read on!

To read this text, you will have to choose the best words from the alternatives given to fill in the gaps!

Welcome to the double planet

SMART-1 was Europe's first mission to the Moon. The scientists taking part have a 21st-Century view of our __(1)__ in space, which makes our connection with it more __(2)__ than ever. The Moon is no longer seen merely as a satellite, but as the Earth's daughter, forming a double planet.
When human beings first went to sea, many thousands of years ago, they monitored the phases and motions of the Moon to know the __(3)__ of the tide in various harbours. More subtle shifts, up and down the sky, fascinated prehistoric experts who wanted to __(4)__ eclipses. Computing the first Full Moon after the spring equinox defined Easter in the Christian calendar. And before modern lighting, convenors of meetings chose dates with predictable moonlight, to help participants find their way.
Such ancient technical interest in the Moon never __(5)__ with the admiration for its beauty, from pagan worshippers of Diana the Huntress to writers of modern pop songs. Nor need it do so now. The fact that human beings have walked on the Moon, and will again, should not diminish but enhance the sense of __(6)__. In the modern perspective, seeking a lunar foothold for science and technology could be a natural step after establishing bases in the harsh but splendid landscapes of Antarctica.

Beauty and science go hand in hand. The artist Leonardo da Vinci was perhaps the first to figure out 500 years ago that the subtle __(7)__ on the dark

part of a crescent Moon is due to light from the Earth. Now astronomers and space scientists measure that earthshine to gauge variations in our planet's __(8)__, and the role of clouds in climate change.
The Moon is almost as wide as the planet Mercury, and 27% of the width of the Earth. __(9)__ with its planet, it is relatively far larger than any other moon in the Solar System. Our neighbour Mars has two small moons, and Venus none at all. The geology of those planets is totally different from ours. So it is not __(10)__-fetched to ask whether the Moon's existence gives the Earth qualities especially suited to life.

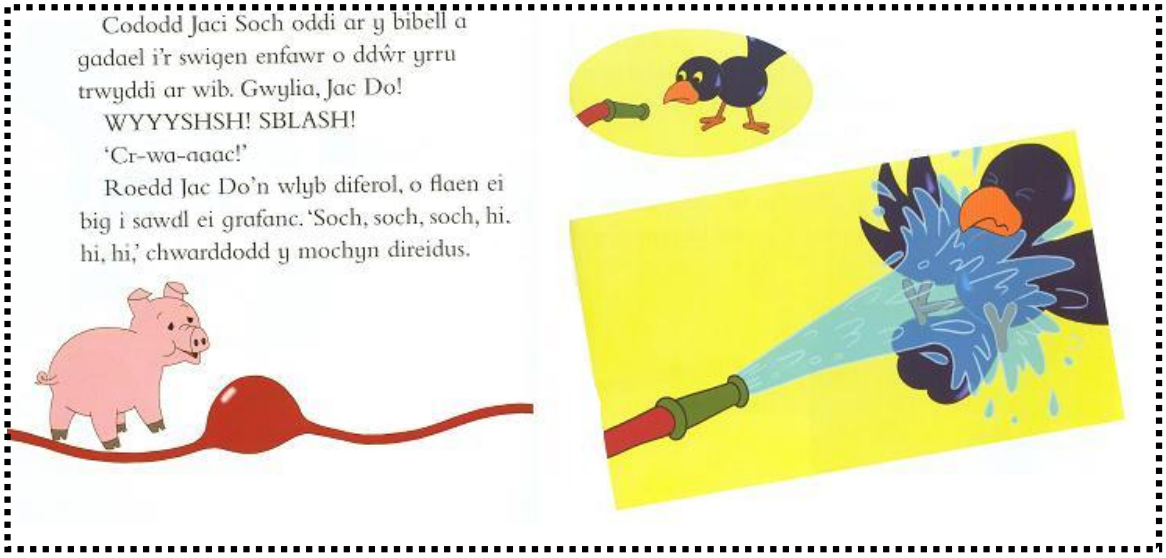
According to a leading theory, the Moon was formed by a __(11)__ with a huge object when the Earth was very young. SMART-1 went to investigate this idea. The spacecraft also __(12)__ the craters of the Moon that chronicle a prolonged bombardment of the double planet by comets and asteroids. There is a particularly large basin near the Moon's south pole, which SMART-1 studied. Our own planet suffered even more severely from such impacts.
Earth and Moon have shared a __(13)__ history for 4.5 billion years. Knowing the Moon more __(14)__ helps scientists to understand our home in space. Then we may be better able to safeguard it.

1.	A. friend	B. companion	C. colleague
2.	A. near	B. close	C. intimate
3.	A. state	B. way	C. position
4.	A. preview	B. prophesise	C. predict
5.	A. contrasted	B. conflicted	C. confounded
6.	A. wonder	B. wander	C. winder
7.	A. glint	B. gash	C. glow
8.	A. cloudiness	B. cloudy	C. clouds
9.	A. Shown	B. Contrasted	C. Compared
10.	A. long	B. far	C. near
11.	A. collision	B. crash	C. shock
12.	A. sought	B. examined	C. looked
13.	A. same	B. identical	C. common
14.	A. well	B. completely	C. thoroughly

The Return of the Moon Man

Context

The Welsh Language



Welsh is a living language, as demonstrated by the page from a children's story book shown above (*from 'Digon o Sioe'by Dylan Williams et al, publ. Cymdeithas Lyfrau Ceredyion*).

The name of the farm in 'The Return of the Moon Man' is **Pen-y-Craig**, clearly a non-English name.

Welsh place names are usually descriptive of the local geography or notable features. **Pen-y-Craig** would indicate **a rock at the head of a valley**. Most names use the same construction as if denoting possession, so 'the estuary of the Tawe' is Abertawe, Brynmawr is 'big hill' and Penrhyndeudraeth is 'the headland of the two beaches', while Beddgelert is 'the grave of Celert'.

The longest place name in the UK is: **Llanfairpwllgwyngyllgogerychwyrndrobwllllantysiliogogogoch** which (of course!) means 'the church of St Mary in the hollow of the white hazel near the fierce whirlpool and the church of Tysilio by the red cave'. This Welsh town on the island of Anglesey is only known due to the fact that it has a very long name, and is the longest railway station name in Britain, and probably the longest domain name in the world.

Originally called Llanfair Pwllgwyngyll, which means 'The Mary church by the pool near the white hazels' the village was renamed in the 19th Century. This was around the time when the railway was built between Chester and Holyhead at the beginning of the 1850s. A local committee was put together to try and encourage trains, travellers and 19th Century tourists to stop at the village in order to help develop the village as a commercial and tourist centre. It is believed that the name Llanfairpwllgwyngyll-gogerychwyrndrobwllllantysiliogogogoch was invented by a shoe maker from Menai Bridge; little did he know that he had implemented one of the most successful tourist marketing plans of all time. Today the village is signposted as Llanfairpwllgwyngyll and is known to locals as Llanfairpwll or Llanfair.

Pronunciation of Welsh names is every bit as difficult as it looks. Here is a quick guide to the way that some of the most common words and sounds are pronounced.

Vowels have much the same sound as in English, and have long and short sounds. So (in a simplified way):

a	c**a**n
e	l**e**t
i	p**i**t
o	l**o**t

Except these sounds

u	l**ea**p
w	p**u**t
y	l**ea**p or **a**side

Dipthongs are an important feature of spoken Welsh. For example:

ae/ai	m**a**te + s**ee**d
aw	n**ow**
ow	h**o**me
wy	g**ooe**y

Consonants are similar to English except for these double letter sounds:

ch	Ba**ch**
dd	**th**e
f	fi**v**e
ff	**f**ive
ll	no English equivalent. Start to say 'l' but suddenly blow out your cheeks to make a clicking sound between your tongue and your back teeth followed by an 'uh' sound!

Try saying these words!

Cymraeg	("Welsh")	**Llech**	("Slate")	**Newydd**	("New")
Afon	("River")	**Clwyd**	("Gate")	**Bwlych**	("Pass")
Bedd	("Grave")	**Craig**	("Rock")	**Fforest**	("Forest")
Pont	("Bridge")				

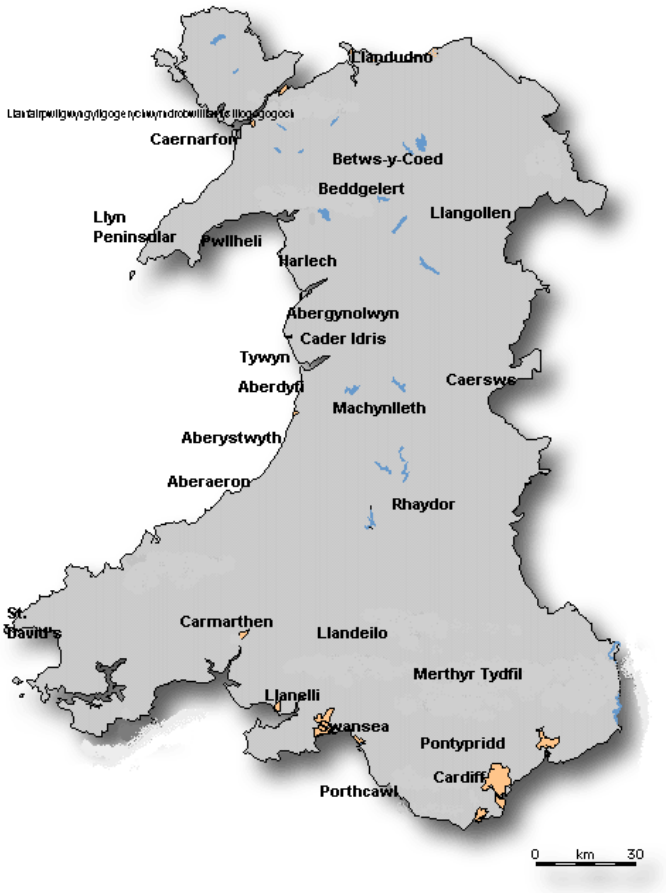
And finally, don't forget to practice saying:

Llanfairpwllgwyngyllgogerychwyrndrobwllllantysiliogogogoch

(You can hear it being said here:
http://www.forvo.com/word/llanfairpwllgwyngyllgogerychwyrndrobwlll/
Or here on video:
http://myspace.vtap.com/video/Llanfairpwllgwyngyllgogerychwyrndrobwllllantysiliogogogoch/CL0045136984_a78a7f6a_V0lLSTczNTkwfmluOjN-cTpicn5idzpXSUtJNzM1OTA

Here are a few Welsh place names with their English equivalents. Some of the names on the map can be 'translated' by using this list - how many can you work out in five minutes?

aber river mouth or estuary; confluence of two rivers
afon river
aran high place
bedd grave
betws prayer-house
brenin king
bryn hill
bwlch mountain pass
cadair chair
cae field
caer fortified place
capel chapel
carreg stone
castell castle
cefn ridge
clwyd gate, perch
coed forest, woodland
craig rock
croes cross
din/dinas fort, city
dwfr, dwr water
dyffryn valley
eglwys church
eryri eagle's domain
fawr big
ffordd road
fforest forest
glyn valley
gorsaf station
gwlad country
gwyn white
heol road
llan clearing, early church
lle place
llech, **llechen** slate
llwybr path
llwyd grey
llwyn grove
llyn lake
llys palace, court
maen stone
maes field
mawr, fawr great
melin mill
merthyr burial place of a saint
môr sea
mynydd mountain
nant stream, brook
neuadd hall
newydd new
ogof cave
parc park
pen head, top of a valley
penrhyn headland
pentre(f) village
plas hall, mansion
pont bridge
porth port, gateway
pwll pool
rhiw hill, ascent
rhos moor
rhyd ford
sant saint
traeth beach
tref town
tw+r tower
ty+, tai house, houses
wrth near, by
y, yr, 'r the
ynys island



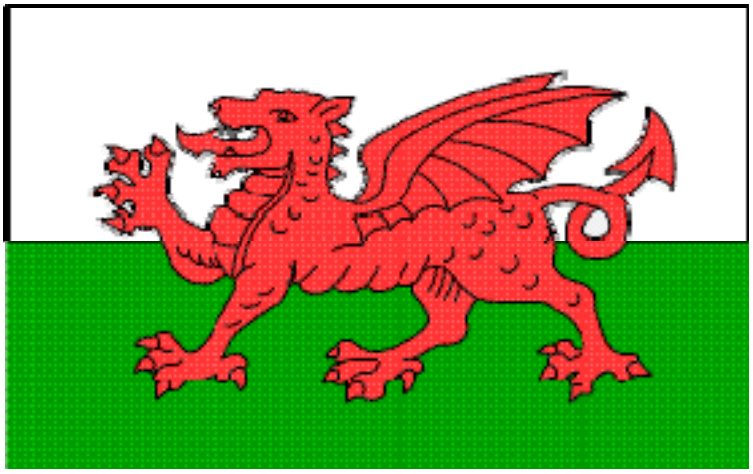
Can you work out what the following Welsh place names would be if translated into English (They are real places, but you won't find them on the map above - they are too small!)

Pentre-llyn-llwyd ……
Llan-y-pwll ……
Coed-y-Bryn ……
Pentredwr ……
Llanbedd ……

Can you put the following 'English versions' of some Welsh villages into their original name forms?

Whitechurch ……
Valleyhead Bridge ……
New Bridge ……
Riverhill ……
Moor Clearing ……

The Welsh flag



A red dragon on a green and white background probably had its origins as symbol of Welsh nationalism from the time of the Romans

Welsh
http://oldweb.cs.cf.ac.uk/fun/welsh/

Return of the Moon Man
Context
Poets

Wales is famous for its songs and poems. Eisteddfodd Genedlaethol Cymru, or the National Eisteddfod of Wales, is a cultural festival lasting eight days, and is a celebration of the best of local music and poetry. (Can you find the reference to the 'Eisteddfodd' in the story 'The Return of the Moon Man'?)

Menna Elfyn is a Welsh poet. That is, she writes primarily in the Welsh language. Here is one of her poems, which is about learning languages (any language). Look at the Welsh original before at the English translation. Try to feel something of the rhythm of the poem. The listen to the audio of Menna Elfyn reading the poem in Welsh

Bloeddier i Bobloedd y Byd

A sylwoch mar ddiamser
yw dyn wrth ddod at iaith newydd?
Bydd, fe fydd yn baglu dros gytseiniaid,
yn gohirio llafariaid,
yn gwisgo holl arfogaeth ei ddyhead
am fuddugoliaeth dros fynegiant.
A bydd, fe fydd ei dafod
fel baban bach ar ei ben ôl.

Felly, bydded i bob un o genhedloedd byd
ddysgu iaith esgymun ei gymydog.
Ie, cropian a chwrian mewn corneli,
colli cwsg wrth ei thrwsglo;
cans fel hyn y daw dileu yr amserau.
Ni ddaw'r gorffennol yn rhwydd ar dafod.
Erys iaith heddiw. Bydd yn ddeiseb hedd-
gan dynnu i lawr yr holl ferfau pigog;
ni fydd yr arnherffaith mar berffaith
a phan nad yw.

A bydd agen, hollt a rhwyg
yn cael eu cyfannu'n y geg agored.
Pob newydd ddysgwr â chof
am gyweirio cystrawennau
cyfod o'i wely, unioni llef.

Ni fydd amser i ledu llid,
cans bydd llwythau wedi eu llethu
â chyfoeth yr holl gerrig arloesi.

A thrwy'r babanod yn Babel bydd iau
wedi ei chodi a'r Uniaith yn iachâu
wrth ymryddhau, rhyddhau wrth hau.

Let the world's people shout

Have you noticed how time-free a person is
when approaching a new language?
Yes, you stumble over consonants,
postpone vowels,
encumbered with all the armour of your longing
for the conquest of expression.
And yes, your tongue is like
a baby bumping along on its bottom.

Well then, let each of the world's peoples learn
the excommunicated language of its neighbour,
yes, creep and crouch in corners,
lose sleep in messing it up,
since this is how tenses will be deleted.
The past will not come fluent on the tongue.
The language of today will stay. It will sue for peace,
pull down all the barbed-wire verbs.
The imperfect will never be so perfect
as when it ceases to exist.

And cleft, split, and rupture will be
made whole in the open mouth.
Each new learner will have the memory
of correcting constructions,
picking up one's bed, rectifying speech.

There will be no time for spreading hatred,
since the tribes will be overcome
by the riches of all the founding stones

And through the babies in Babel
a yoke will be raised, a United Languages heal
in freeing oneself, freeing in sowing the seed.

English translation by Joseph Clancy