The future use of flying drones

Submission of pupils' views

to the Department for Transport

for its Consultation on the Safe Use of Drones in the UK

Introduction

1. This report is by Pupils 2 Parliament, a project to enable school pupils to consider and feed in their views to parliamentary, national government and national body public consultations and inquiries. The project has been approved by the Clerks of both Houses of Parliament to use the term 'Parliament' in its title.

2. Pupils 2 Parliament aims to bring the particular viewpoint of children and young people to those conducting inquiries and consultations - plus the uniquely fresh and often challenging analysis that children and young people bring to decisions and policies.

3. The project also aims to give school pupils the chance to learn about and consider key decisions being made by parliament, national government and public bodies, and genuinely to participate in democracy by feeding their views into real national decisionmaking.

4. Pupils' views are independently gathered through discussions with groups of pupils led by someone from Pupils 2 Parliament, using material from the relevant consultation or inquiry document to explain the issues. We specialise in putting the issues and questions even-handedly, without leading pupils in any way or suggesting any responses. All views come spontaneously from pupils, with no adult prompt.

5. This report gives pupil views for the Department for Transport consultation on the safe use of drones in the UK. The information we gave to pupils came from the consultation document on the government website, and we asked pupils questions from the consultation.

6. The report contains all pupil views given, without selection, comment or addition. The views in this report are entirely pupils' own views, and nothing but pupils' views.

7. Views in this report came from six focus discussion groups of pupils aged 9 to 12 at Stokesay Primary School, Craven Arms, Shropshire; Moor Park Preparatory School, Ludlow, Shropshire; Colley Lane Primary School, Halesowen, West Midlands; Peters Hill Primary School, Brierley Hill, West Midlands; Staunton on Wye Endowed Primary School, Herefordshire; and a group of children from 5 schools (Amblecote Primary School, Hob Green Primary School, St James's Primary School, Peters Hill Primary School, and Ridgewood High School) in the Stourbridge Learning Partnership School Council Forum. A total of 158 pupils gave their views through these groups.

The children's experience of flying drones

8.   At the start of each group discussion we asked how many pupils had taken part in flying a drone, either controlling the drone or being an active part of the flying crew (not just watching others flying it). 71 of the pupils had been involved in flying drones – that is 45%, just under half).

9. Those who had been involved in flying drones included pupils who had flown 'fun' drones which they or someone else in the family had been given as a present, and

those who had flown drones in private spaces. Some had started with fun drones and then gone on to bigger drones after that. Some said there were lots of drones in their family.

10.   Others had used drones to take pictures. One had taken pictures with a relative's drone. Another had filmed from a drone flown at walking height at a circus.

11.   One pupil owned a working drone with his family on their farm, and flew it for farm work such as helping to move their sheep.

12.   Experiences of flying drones had ranged from the brilliant ("it felt awesome to fly a drone") to the difficult ("I broke it on the first day because I didn't know how to use it and lost control – but it didn't hurt anyone").

13.   Many had heard a lot about the dangers of drones. One posed others in their group the question "is there anything unsafe about drones?" Others said that they had heard of drones being used to drop keys and other things to prisoners, and of drones falling and hitting people on the ground. One thought they had heard a drone being used to shoot birds. A number had heard of people using guns to shoot drones down.

Awareness of the Drone Code

14.   The government is concerned that not enough people who fly drones know about the rules for drone flying. The Drone Code sets out a list of the six key rules on one piece of paper. We asked the pupils who had been involved in flying drones whether they had come across the Drone Code and knew something of the rules in it. Out of the 71 pupils who had been involved in flying drones, 2 said they knew what was in the Drone Code. In one group, most said they had heard of it, but didn't know what it was.

Testing new drones

15.   The government's consultation document sets out a number of possible ways of providing places for drone manufacturers to test out new designs of drones safely. We told pupils the government wants to get the balance right between making sure manufacturers can easily test out and develop new sorts of drone, and making sure that drones are tested and flown safely.

16.   We asked pupils in each of our groups to vote on each of four main options. They could vote for as many options as they wished, and so the results show how much support pupils overall gave to each choice.

17.   Two options were supported by the majority of pupils. These were:

- Setting up small drone test sites around the country (supported by 105 pupils)

- Adding drone testing to existing centres which test robots or driverless cars (supported by 99 pupils).

18.   Two other options were each supported by fewer than half the pupils. These were:

- Drone makers applying for permission to test their drones in local areas of open country (supported by 58 pupils)
- Building a national drone testing centre (supported by 54 pupils).

19.   One reason given for supporting lots of small drone testing sites was that it would give people everywhere a nearby test centre to try out any new drone they were working on. Companies would always have a small local centre close to them. People wouldn't have to travel far to a test site.

20.   Another reason was that having small local testing centres would make it less likely that people would test drones in unsafe places; "safer and stop others getting hurt if they tested any old where".

21.   The same reason was given for supporting adding drone testing to existing robot and driverless car testing centres. If they were already in different parts of the country, there would probably be one reasonably near to any drone manufacturer. These existing test centres already have test facilities and probably the room to add drone testing to their existing work. The point was also made that drones are in many ways like robots and it made sense to test both of these in the same places. Much testing and equipment could be shared between the makers of robots, driverless cars and drones.

22.   One pupil was concerned that using up land for lots of new small local test centres around the country would take local land that could otherwise be used for much needed house building. They were more in favour of having a single national drone test centre somewhere where housing was less likely to need to be built.

23.   A reason in favour of drone makers being able to apply for permission to test their drones in nearby country areas was that this would mean lots of makers could test in local places that were good for them. This could mean there would be more development of more drones.

24.   Pupils were not sure who should be able to give permission to test drones in country areas. In one group, the strong view was that giving or refusing permission should be up to the landowner of the place where testing was proposed.

25.   Other points made about this option were that it was better to test drones in the open country than in town areas where they could cause more trouble, and that anyone given permission to test a drone in a country area should have by law to keep a safe number of metres away from any other people.

26.   There was a concern in one group that allowing people to test drones in lots of different country areas could endanger wildlife and rare species.

27.   The main reason given for supporting the option of a national drone testing centre was that all testing would be concentrated in one place which had all the facilities needed. Some though opposed this option because it would be very costly to the government to build. Again, the issue of building drone testing sites on land that could otherwise be used for housing came up. A national drone testing centre could also take up land which could otherwise be used for much needed housing; "the country doesn't have space for new houses, let alone a drone site".

Rules for drone pilots

28.   We asked each of our six focus groups what rules they thought should be made into law for drone pilots in the future. As always we made no suggestions, gave no leads, and have listed in this report every proposal the pupils made.

29.   Here (in no particular order) are the proposed drone rules put forward by pupils for the government to consider. We have listed all their proposals, so there are some different proposals about the same idea:

- Have to register all drones (like cars)

- Drone registration might cost £5 for small drones, £15 for drones with cameras and £50 for very big drones; or £5 in the countryside and £50 in cities where there is more risk

- Have a national register of all drones, so the police can trace them and the identity of their owners

- Drones should each have a registration numberplate on them; "cars have number plates – drones should have number plates"

- Drones should carry a microchip which transmits their registration number

- Drone pilots should have to inform the police of where they are going to fly their drone

- Have to get a licence before you can either own or fly a drone

- To get a licence to fly a large drone or a drone with a camera, have to pass a flying test to make sure you can fly it safely.

- Drone flying tests could include flying safely around obstacles, and you should be able to practice this and retake the test if you fail

- Have to get a special licence before you can fly a drone carrying a camera

- A government permit should be required before flying a drone in public

- You should have to get a special licence before you can fly a drone over a public place

- No licence should be needed for flying a drone only over your own land; a licence should be needed before flying a drone over a public place; the landowner's permission should be needed before flying a drone over someone else's house or land

- Drone registration and drone flying licences should only last a limited period

- Drones should only be sold to people who can prove they are safe to fly them

- People should have to show ID and have this recorded when they buy a drone

- There should be a minimum age for flying any drone

- There should be a lower age limit for flying a drone fitted with a camera, without a supervising adult

- Drone pilots should know how to fly well

- It should be illegal to fly a drone in any place where it is not safe to fly it

- Drones should not be flown near roads, because of the risk of causing accidents

- Must keep at least 50 metres from any living thing, as the existing Drone Code says – this should include animals as well as people, as drones can affect farm animals, horses and others

- As in the present Drone Code, drones should not be flown near to airports

- Drones should not be flown near to prisons

- For safety, drones should not be flown at night

- Drones should not be flown near water

- There should be a specific law that a drone must not be used to do anything bad

- Drones should not be flown over strangers

- Drones should only be flown over your own land

- Drones should only be flown over other people's land where the landowner has given permission – you should not simply be able to go and fly a drone wherever you want to

- You should not be allowed to fly a drone from anyone's land or property but your own, without the landowner's permission to take off there

- **Drones should only be flown over your own property or open spaces**

- **Drone flyers should stop flying and move on if asked to by the public or landowners**

- **Drones with cameras should only be flown where the pilot has got permission to fly with a camera (including the pilot's neighbours if they fly over their land)**

- **If someone has given permission for a drone to be flown over their property or land, they should be able to withdraw this at any time if they get fed up with the drone**

- **Drones should never be flown over busy places**

- **Drones should not be flown in public places in case of falling onto people if they fail or run out of battery power**

- **Drones should not be flown too close to other drones**

- **Drones should never be flown too far away in case they go out of control range, hit obstacles the pilot can't see, or crash**

- **There should be fines for flying drones where the rules say you shouldn't**

- **There should be bans on flying drones for their improper use**

- **It should be illegal to attach a weapon to a drone**

- **Using a drone for any sort of spying should be illegal**

- **It should be illegal to circle a drone over any people, property or place**

- **It should be illegal to use a drone to smuggle contraband**

- **Police could have enforcement drones able to net or bring other drones down if they were being misused**

- **You should not take photographs of other people's houses or land, even if the drone itself is over your own land – you shouldn't be allowed to take pictures over your fence**

- **No picture should be taken of a person without their permission**

- **No drone film or pictures should be put online if there is a person in them**

- **No picture should be taken near a house or car**

- Drones with cameras should not be allowed to fly over schools when children are there

- Drones with cameras should not be used for fun use – they should only be allowed for serious business and official uses

- There should be set areas where drone flying is permitted, and any drone flown outside those areas could be 'taken down'

- There should be set areas where drone flying is not allowed, which can be identified using GPS

- No picture should be taken from a drone if someone in sight of the camera asks you not to

- People should be able to apply for their private land to be made a total no drone flying zone

- If there is a problem with drone flying in a particular place, signs should be put up saying you can't fly drones there, and pilots should then not fly there

- People should be able to put up signs or special markers on their own land telling people not to fly drones there

- People should be able to report drones they don't want flying over their property to the police (rather than shooting them down themselves)

- There should be a limit on how long any drone is allowed to stay in the air

- There should be a restriction on how high a drone can be flown; "don't fly too high"

- A drone should not be flown horizontally until it has reached a set minimum height vertically above its takeoff point

- Drones should have an automatic minimum and maximum flying height that they won't go beyond in normal flight

- Drones should be fitted with trackers that record where they have been flown

- Drones for proper business or public service use (including mapping by Google Maps) should be allowed to fly over public and private land on official business

- Drones allowed to fly over public or private land on official business should be colour coded so they can be easily identified

- Before using drones for making films, pilots should get permission to film and should have a proper work and anti-collision plan

- Some specialist uses for drones should be generally allowed without needing special permission – for example if a drone is being used to help rescue escaped pets up trees

- Drones used for law enforcement should be allowed to fly freely over public or private land wherever they need to in order to catch criminals

- Drones should have PIN numbers to operate them, to counter theft and illegal use

- Fit drones for outside flying with sensors which can trigger a danger alert on the pilot's handset when the drone is flying towards and obstacle

- Fit drones with sensors to detect an obstacle close by and a system making the drone automatically avoid the obstacle

- Design drones so they will automatically return to the ground slowly if they malfunction or run low on power, rather than simply falling fast and crashing

- To reduce use of drones for spying on people or places, drones with cameras should be kept in sight of the pilot at all times, and should be fitted with devices that make them turn and return to their takeoff point when they reach a certain distance from their pilot on the ground

- It should be illegal for a drone pilot to take their eyes off their drone, or to talk to people or do other things while in control of a drone – they should keep their concentration on the job of flying the drone safely

- It should be illegal to be in control of more than one drone in the air at once.

30.   Pupils themselves proposed, without any prompting at all from anyone, many of the ideas put forward by the government – such as drone registration, flying tests, drones transmitting their ID, and a minimum age for flying a drone. The pupil votes set out later in this report show the levels of overall pupil support for some of these proposals.

31.   Some of the pupils' proposals are already in the Drone Code – but they wanted to change one item in the Drone Code. The Code at the moment says that drones should not be flown too high, but pupils also wanted the rules to say drones should not be flown too low either. They were concerned that a drone flown too high could easily spy on people or go out of range of the pilot's controls on the ground, but that a drone flown too low could be more dangerous to the public and property on the ground.

32.   There were some common themes in many of the proposals, from most of our pupil focus groups. These included making different rules for toy drones and larger drones, and for drones carrying cameras. They also included many thoughts about the question of needing to get permissions before flying drones over other people's land, in public areas where they would be flown over other people, and to protect people's privacy from cameras being flown over them. Many were worried about the risks to privacy from drones; "because it's not really fair to take pictures of people who don't

want them"; "don't spy on people you don't know". Pupils also had many ideas about automatic safety features that could be fitted to larger drones.

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Should people have to pass a flying test before they can fly drones?

33.　　We asked all six groups to vote on whether or not people – of any age – should have to pass a practical flying test before being allowed to fly a drone on their own. The idea of a flying test had already been proposed by pupils themselves.

34.　　By a strong majority of 101 votes to 55, the pupils voted that people should have to pass a practical flying test before flying a drone.

35.　　Reasons for voting in favour of a compulsory drone flying test were that it was similar to having to pass a test before being allowed to drive a car; it was important to safety and protecting privacy, and you could hurt someone if you lost control of a drone. "If you like drones but are really bad at it, you could hurt someone."

36.　　A clear view in one group was that a child could be allowed to fly a drone, and learn enough to take a drone flying test themselves, under the supervision of a parent with a flying licence for drones. This was very much like learning to drive a car with a qualified driver.

37.　　One reason for voting against a flying test was that it would be difficult for someone to learn to fly a drone if they weren't allowed to fly it before they had passed a flying test ("how will they practise flying before the test?"). Another was that a flying test was making too much fuss for most drone flying ("it's just a drone, not much to be bothered about"); remote control cars don't need a test so why should drones? Some thought that children should be allowed to experiment with drones, provided they did not disrupt other people.

38.　　There was a view that inexperienced drone flyers would probably learn to fly under someone else's supervision. A proposal was that there should be drone flying clubs, in flat safe areas, where new pilots could learn and practice flying their drones.

39.　　Some were 'in between' on the question of a drone flying test. It was good to learn to fly and pass a flying test to stop accidents involving drones, but on the other hand passing a flying test won't stop people misusing a drone. Also, a drone test might be important for larger drones, but less for small drones. A testing scheme would also cost a lot of time and money.

40.　　Another view was that people who really don't know what they are doing with a drone should have to learn and pass a test, but that a test would be unnecessary for many people buying a drone. Perhaps there should be a serious reason for asking someone to pass a flying test. People who simply wanted to play and fly a small drone for fun should not have to pass a test, but a test should be needed for a professional or official use of a drone.

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41.   As one pupil put it, someone getting a small drone as a Christmas present, which can't really hurt you, shouldn't have to wait months for a test before playing with it. They would probably fail a test anyway if they had just got a drone as a present – and a small child would be very upset if they got a toy drone and failed a test so couldn't play with it.

42.   Someone should only have to pass a test if they were going on to use a bigger drone for a serious purpose, or if they were going to fly their drone in public rather than at home.

43.   There were different views on the risks of accidents involving drones. One pupil said that there are not a lot of obstacles to cause accidents in the sky, but another disagreed from their personal experience of drone flying, saying there are risks from trees, overhead wires and birds.

44.   Many thought that the risks of injury or damage were less with small toy drones, and perhaps therefore a flying test should only be required to fly drones over a certain size. "Small drones cannot cause so much harm." Also, toy drones were likely to be flown by children under parental supervision.

45.   Another view about safety of small, toy, drones, was that instead of expecting people to pass a test before flying one, small drones themselves should be made safer and less likely to hurt people if the pilot lost control – for example by having good safety guards round their propellers.

46.   It was also suggested that there should be a simple test for children to take, to fly small drones, and a biggger test for adults or people who were intending to fly larger drones.

47.   Again, there was support for people being allowed to retake the flying test if they failed, perhaps with a week to practice before trying again.

48.   A concern in one group was that criminals wanting to misuse drones could easily buy a drone and take a drone test without giving their real names. People should have to show ID to take a drone test (though even then, people could use someone else's ID to get a licence or take a test).

Ways of making sure people know about the Drone Code and keep to what is in it

49.   It was clear in all our groups that while many pupils had been involved in flying drones, hardly any knew the rules in the Drone Code. This is very common, and the government has asked for proposals to make people far more aware of the Drone Code, and any new laws and rules for drone flying, in the future.

50.   We asked pupils for their proposals for this, and here (in no special order) are all the proposals made in our pupil focus groups:

- When the new rules for drones have been written, the code of rules should be given to the buyer of any drone with their new drone

- Print the code on the box for new drones

- Make drones impossible to fly until you enter a PIN number, and make an app that requires you to work through the drone code before it gives you the PIN to use your drone

- Put the rules on a banner scrolling across the bottom of your drone controller's monitor screen

- Advertise the code on radio, TV, in newspapers and on posters in public places

- Advertise the drone code widely on social media

- Put the drone code rules on posters in all shops selling drones

- Put information about the code on the sides of buses

- Have a website for drone rules, and print the link to that website on the box of every drone sold

- Include a link to the drone code website on lots of other websites

- Print a link to the drone rules website on every drone

- Include information about the drone code in any advertisement for a drone

- When anyone buys a drone, give them a link to download the full set of rules

- Advertise the code on YouTube adverts that you can't skip

- Send a copy of the new drone code to every household

- Include the code rules in the instructions for flying any drone, as part of the same instruction manual

- Require buyers to read the code through before they can buy a drone

- Require shops to test buyers on the code before selling them a drone

- If drone pilots have to have a licence, print the code on their licence

- Make it the law to have a copy of the drone code if you fly a drone (and make it cheap to buy)

- Send updates to the code rules to all drone owners and pilots

- Give people a free app with the drone code rules when they buy a drone

- Ask local authorities to distribute copies of the new drone code

- Make a TV progamme about the drone code, keeping safe with drones, and keeping people's privacy with drones

- Programme drones so that they avoid breaking the main rules in the code

- Programme the pilot's control handset to spot breaches of the code, and to sound a warning bleep

- Make the control monitoring screen show the height the drone is flying at, together with a reminder of the height it is allowed to fly at under the code rules

- Children should learn the drone code rules at drone flying centres

- Get people interested and help them remember the code by inventing a catchy motto about flying safely.

51.   One view put forward by pupils was that in the interests of safety, drone pilots should have a *detailed* set of flying rules to refer to – not just a short list of very general key messages.

Should there be a knowledge test to make sure drone flyers know the rules?

52.   In discussion, and realising that few pupils who had flown drones knew the Drone Code, our groups thought overall that people who want to fly drones should know about the rules for flying them. We asked them to vote for four different choices about having a test of knowledge about drone flying rules before taking control of a drone. Pupils could vote to support more than one choice.

53.   There was strong support for being required to pass a test of knowledge of the flying rules before you can fly a drone. 72 pupils supported having a knowledge test you had to pass before flying any sort of drone – *except* for small fun or toy drones without cameras. 64 thought the government should consider having a compulsory knowledge test before flying any sort of drone, including small fun or toy drones. Fewer pupils, 24, supported not having any sort of knowledge test at all.

54.   There was support from 51 pupils for the idea of a voluntary knowledge test – one you could use to test yourself and help you learn the rules, but don't have to pass.

Should there be a lower age limit for flying drones?

55.   Pupils supported the government setting a lower age limit for taking control of flying a drone, by 85 votes to 43 (others abstained).

56.   An example was given of a young child sending a drone far too high and losing control of it, although others thought it was not fair to younger children to say they couldn't enjoy learning to fly a small drone.

57.   One proposal was that you could have an age where you could fly a drone with your parent's permission, and that a younger child could have a go at flying a drone with their hands guided by a supervising adult's hands.

If a lower age limit is set, what should this be?

58.   We asked pupils in all groups to show which age they thought the lower age limit for flying a drone should be, out of all ages up to 18.

59.   The median (middle) of all the proposed minimum ages was eight. A quarter of pupils thought the lower age limit should be set very young, at 6 or under, and a quarter thought the age should be set at 12 or older. Seven pupils wanted the lower age to be 16 or older, and out of these, three thought that children should not be allowed to fly drones, wanting the age set to 18.

Marking drones as only suitable for children above a certain age

60.   Children are used to finding that boxes for things tell you what age they are suitable for. We said that the government is concerned that if it says on the box for a drone that the drone inside is only suitable for children above a certain age, people over that age might think they will easily be able to fly that drone, and less likely to realise it might still be difficult or dangerous.

61.   We asked four of our six groups to advise us on whether they thought putting an age on the box of a drone would or would not make everyone over that age believe they could easily fly the drone inside the box, without realising it might still be difficult or dangerous. Out of 107 pupils who answered this question, the majority (81) thought putting an age on the box would indeed make people over that age think this. 26 pupils thought it wouldn't.

62.   A different view from one pupil was that no-one really takes any notice of age limits on boxes.

Making people know about 'no drone flying' zones

63.   We asked five of our focus groups which of four options they supported for telling people about areas where they shouldn't fly drones. These might for example be areas near airports or prisons. The four choices came from the government's consultation document. Pupils could support more than one option.

64.   By far the option with the most support was to programme drones themselves automatically not to fly into 'no drone flying' zones (by what is called "geo-fencing"). This was supported by 105 pupils.

65.   61 pupils supported putting clear signs up around 'no drone flying' zones. 50 pupils supported the idea of developing mobile phone apps that would alert drone flyers to 'no drone flying' zones near to them.

66.   The least supported option was to give written information about 'no drone flying' zones to people when they bought a drone. This was supported by 28 pupils.

67.   One pupil proposal was to programme camera drones to give a 'no fly zone ahead' warning to its controller on their camera monitoring screen if GPS showed the drone as heading for a no fly zone.

Registration of drones without a flight notification app.

68.   Pupils had themselves already proposed the idea of registering drones, so that each drone sold had its own identification number which could be used to find out the name and address of its owner. This was also one of the government's proposals, and we asked pupils in four of our focus groups to vote on whether or not the government should bring in a drone registration system for all drones bigger than small toy ones without cameras. This would be a registration scheme which wasn't linked to drone pilots also having to notify someone when or where they were going to fly their drone.

69.   115 pupils voted on this question. There was a big majority in favour of the government introducing a drone registration scheme. 83 pupils voted for this, with 32 against.

70.   One concern raised was that if someone steals your registered drone, and it crashes or causes an accident, you should not get into trouble as the owner when the drone is traced back to you.

71.   Having to enter a personal PIN number to start up a drone would help prevent theft of registered drones from their owners. It might also be possible to programme a drone to fly back to its owner's location if someone started flying it without entering the owner's PIN code.

Registration of drones plus a flight notification app.

72.   In our next question, we asked pupils in all six of our groups to vote for or against another government proposal – a registration scheme for drones *plus* making it compulsory for drone pilots to send a notification (probably using a special mobile phone app.) to say where they were going to fly their drones. We explained the key points about this proposal from the government consultation document.

73.   There was very strong support from pupils for this. Overall, 128 pupils voted for the government setting up a system for the registration of all drones (other than small toy ones without cameras) and as well as this requiring all drone pilots to send a notification saying when and where they were going to fly their drone. There were 32 votes against this.

74.   Out of the 128 pupils who voted for registration of drones together with notification of drone flights, 74 voted for this scheme to be introduced in the UK straight away. 54 voted for waiting to see how this went in other countries and then introducing a UK scheme improved by the experience of this in other countries.

75.   It was also proposed that the phone app you used to notify your flight could also tell you of other drones that had notified flights in your area.

76.   A concern was raised that you should not have to have a mobile phone in order to fly a drone. Some children told us that they had been given a choice of having either a drone or a mobile phone – which meant that if they had chosen to have a drone, they would not have a mobile phone to notify its flights on!

Should model aircraft be exempt from registration?

77.   The consultation document asks whether model aircraft, being flown by a member of a model aircraft club, should be exempted (left out) of having to be registered as drones. This is because model aircraft could well count as drones, but they have been around for a long time and have not caused any problems or concerns.

78.   One pupil commented that people could of course use model aircraft to hold war re-enactment air battles (though it was a pity those hadn't been used as a way of resolving some real battles in real wartime!).

79.   We asked four of our pupil groups about this. Pupils voted strongly in favour of exempting model aircraft flown by members of model aircraft clubs from needing to be registered as drones. 78 voted in favour of leaving model aircraft out of any drone registration scheme, and 29 against.

Should the Government require an electronic identification system for drones and manned light low flying aircraft?

80.   A proposal to put a chip into all drones which would transmit their registration number had already come from one of our focus groups. The government has proposed that drones might have to carry an "electronic identification system" to do this, so that people on the ground can pick up its transmissions to find out its registration number and who owns it.

81.   Pupils in all six groups voted on this proposal. They were very strongly in favour of it. 133 pupils voted for drones, other than toy ones, having to have a system that transmits their registration numbers, with 25 voting against this.

82.   The government has pointed out that there are many light aircraft carrying pilots, which are low flying but do not have to carry a transmitter sending out their registration letters. The consultation document asks whether people think these aircraft should have to have such an electronic identification system, as well as drones having to have one. Out of the 133 pupils who voted in favour of drones having to transmit their registration numbers, the majority (84) voted in favour of light aircraft carrying pilots having to have electronic identification, as well as drones.

83.   Pupils told us that electronic identification would be the best way for the owner of a drone in flight to be traced and contacted if necessary.

84.   There was a view that military aircraft should also be traceable by electronic identification exactly the same as drones or light aircraft with pilots.

Should the Government introduce an Unmanned Traffic control System for drones?

85.   A final question from the government was whether people would be in favour of setting up am "Unmanned Traffic Control System" for drones. Airliners are controlled by Air Traffic Control, with controllers in special control centres who give pilots instructions they must follow, who give them information and safety warnings, and who make sure that aircraft aren't flying too close to other aircraft.

86.   Airline pilots have to get permission for each flight from their air traffic controllers. A control system for drones would do the same sort of job, but would be run by a computer rather than controllers in control centres. Drone pilots might use mobile phones to ask the control system for permission each time they want to fly their drone, and to receive warnings and instructions.

87.   We put the idea of a computerised control system for drones to the vote in three of our pupil groups. 80 pupils voted on the idea. The majority were in favour of one day having a computerised control system for drones, though the vote was closer than the votes in favour of other proposals like registration of drones and drones having

electronic identification systems. 49 pupils voted in favour of an Unmanned Traffic control System, with 31 voting against the idea.

88.   The main reason given by pupils for supporting the idea of a traffic control system for drones were for safety; "we should because it will be safer".

89.   Against the idea was the view that pilots of drones with cameras should be expected to use their camera images to watch out for risks or other drones. A full control system may be a step too far; "they should not because it is too much for a small need". There was also the question of cost; "no, it would cost too much money".

90.   I am grateful to the Heads of the five schools, and to the Stourbridge Learning Partnership School Council Forum, for letting me carry out these focus discussion groups, to the staff members who recorded the pupils' votes and views in all our groups, and above all I am grateful to the pupils themselves who gave their fresh thinking, views and ideas for this report.

Dr Roger Morgan OBE
Pupils 2 Parliament

27th February 2017