

## Wireless networks in schools survey

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## Wireless networks in schools survey

Becta purchased questions on an online survey run by C3 Education about wireless technology in schools. The survey was sent to a profiled selection of members of C3 Education's National Education Research Panel (NERP). The NERP is a pre-selected panel of schools across England that includes a mix of schools of different sizes, location and technology maturity.

The online questionnaire was conducted in March 2007. It was sent to 1200 NERP schools with a response rate of 46 per cent. The survey resulted in 555 completed returns of which 381 were from primary and 174 from secondary schools.

Seventy per cent of primary and 81 per cent of secondary schools in the survey had a wireless local area network (WLAN). For nationally representative figures on the use of wireless networks see Becta's Harnessing Technology Schools Survey 2007 [[http://partners.becta.org.uk/index.php?section=rh&catcode=re\\_rp\\_02&rid=14110](http://partners.becta.org.uk/index.php?section=rh&catcode=re_rp_02&rid=14110)], which found that 50 per cent of primary schools and 82 per cent of secondary schools make at least some use of wireless network technology. Although not necessarily nationally representative, the survey below does provide some useful additional detail about wireless networks in English schools.

### Key points<sup>1</sup>

- Fifty seven per cent of primary schools and 34 per cent of secondary schools had over 75 per cent wireless coverage of their school buildings.
- The most popular reason for implementing wireless was to support the use of ICT in classrooms other than ICT suites (81 per cent primary and 66 per cent of secondary schools).
- In terms of speed, 85 per cent of primary schools said their wireless network performed better than expected or as expected. For secondary schools this figure was 77 per cent.
- In terms of reliability of connections, 69 per cent of primary schools said their wireless network performed better than expected or as expected. For secondary schools this figure was 65 per cent.
- In terms of ease of management 83 per cent of primary schools said their wireless network performed better than expected or as expected. For secondary schools this figure was also 83 per cent.
- Ninety one per cent of primary schools and 81 per cent of secondary schools did not have any central management tools for the wireless network.
- One per cent of primary schools and 22 per cent of secondary schools allow personally owned pupil devices onto the wireless network. Twenty

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<sup>1</sup> These figures relate to schools with wireless networks

six per cent of primary schools and 42 per cent of secondary schools allow personally owned teacher devices onto the wireless network.

## Full survey results<sup>2</sup>

### 1 Schools with any form of wireless network for connecting computers and mobile devices to the school network and/or broadband connection

	Yes	No
Primary	70%	30%
Secondary	81%	20%
Overall	73%	27%

The following data only relates to schools who responded 'Yes' above. The data has been adjusted for non-responses, but no other manipulation or weighting has been carried out. Percentages have been rounded to the nearest whole figure unless this would result in a 0.

### 2 Percentage of school buildings reliably covered by the wireless network

	< 25%	25-49%	50-74%	75-99%	100%
Primary	18%	10%	14%	34%	24%
Secondary	36%	16%	15%	24%	10%

### 3 Standard(s) of wi-fi used on the wireless networks

	802.11b	802.11g	802.11a	'Pre-n'/proprietary
Primary	36%	70%	10%	2%
Secondary	46%	80%	16%	2%

NB some schools support multiple standards

### 4 Security standard(s) implemented on the network

	WEP	WPA	WPA2	Unsure	None
Primary	37%	14%	2%	45%	4%
Secondary	48%	24%	9%	22%	5%

Reasons given for having no security included: isolated locations, failure of the network to work with security enabled; use of MAC address filtering as an alternative.

## 5 Features on the wireless network

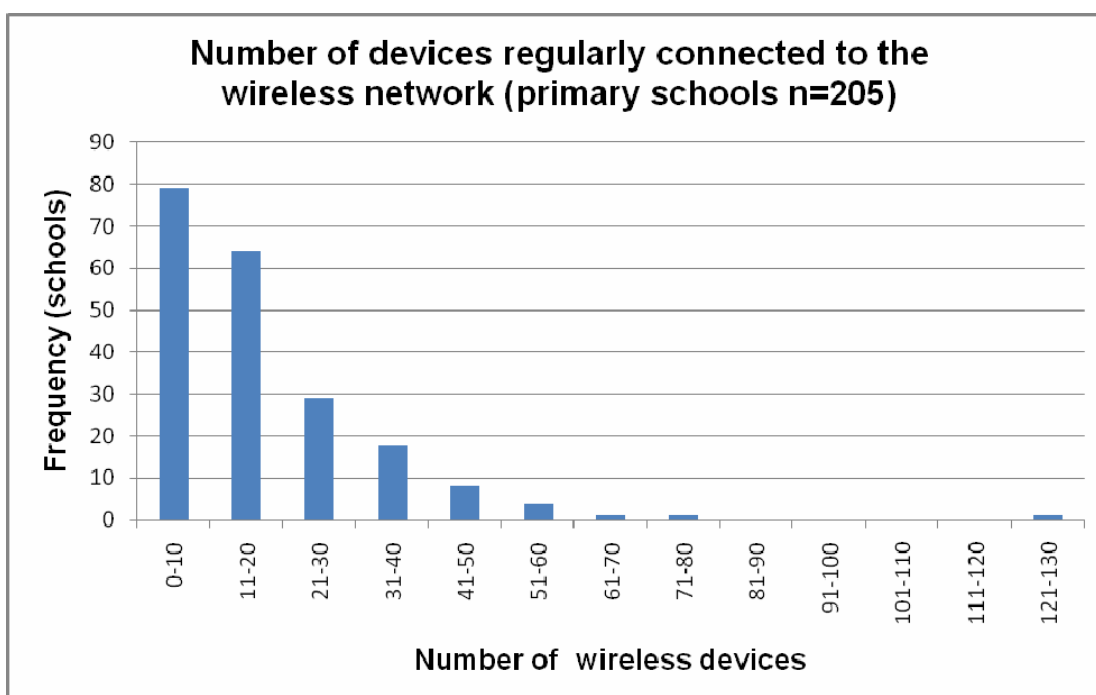
	QoS	PoE	IDS
Primary	9%	11%	11%
Secondary	13%	26%	9%

QoS: Quality of Service; PoE: Power over Ethernet; IDS: Intrusion detection system

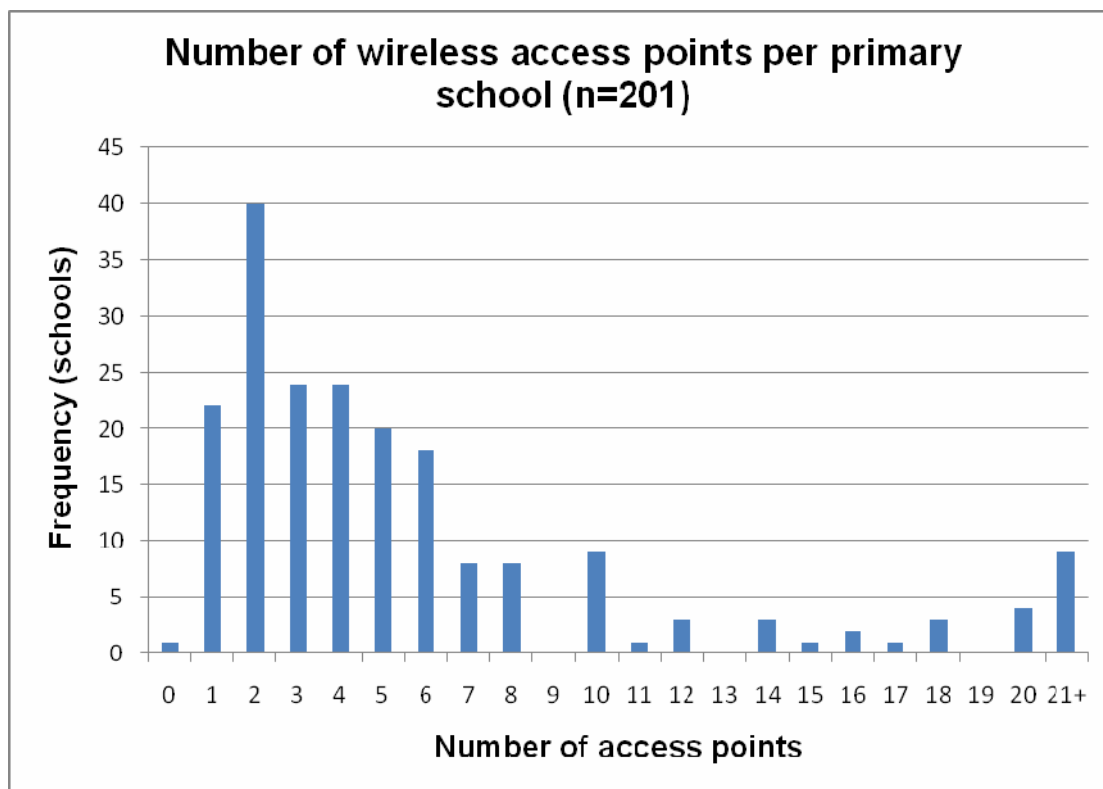
## 6 Number of computers, mobile devices and access points

### Primary schools

	Number of computers and mobile devices able to be connected to the wireless network	Number of computers and devices which are regularly connected to the wireless network	Number of access points located around the school
Average number	26	18	7
Highest number of devices	130	130	60
Lowest number of devices	2	1	1

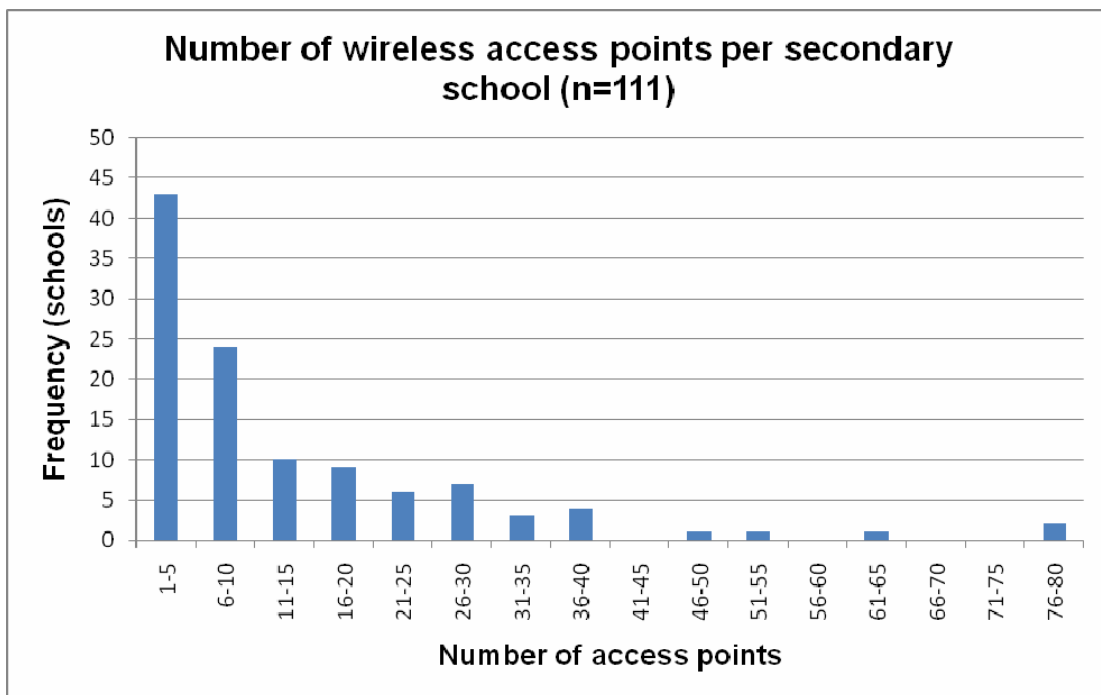
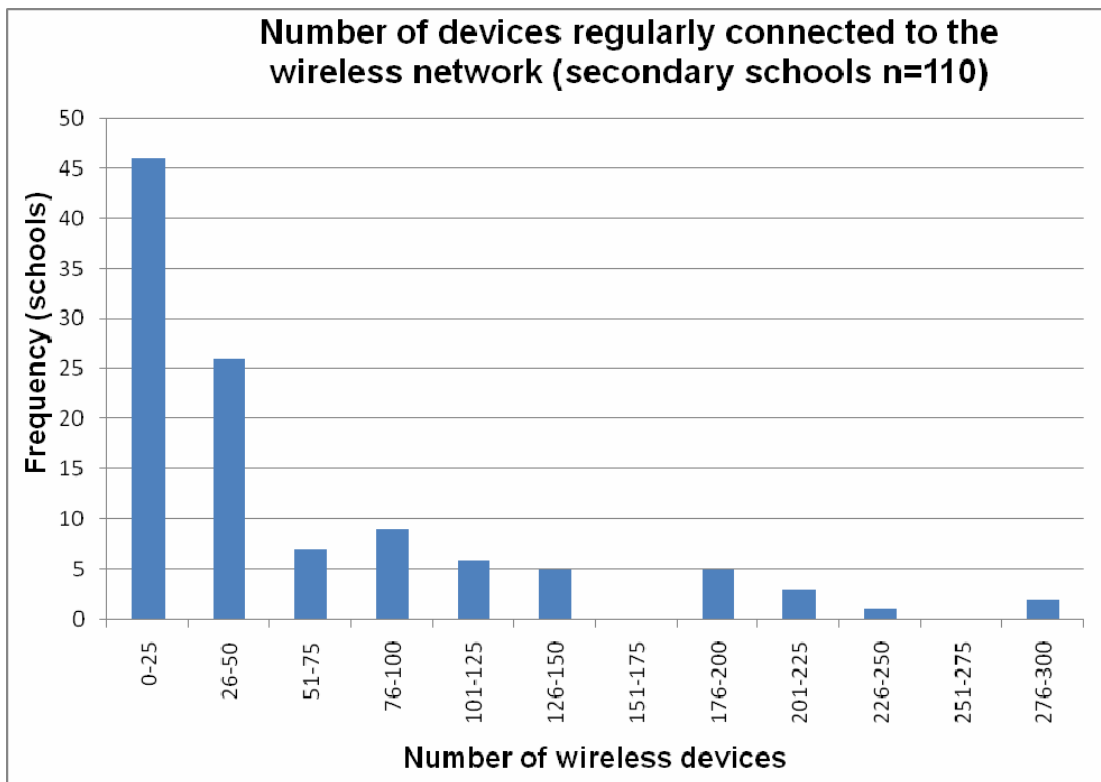


<sup>2</sup> These results have been compiled by Becta from survey data provided by C3 Education



### Secondary schools

	Number of computers and mobile <b>devices able to be connected</b> to the wireless network	Number of computers and devices which are <b>regularly connected</b> to the wireless network	<b>Number of access points</b> located around the school
<b>Average number</b>	98	61	14
<b>Highest number of devices</b>	487	300	80
<b>Lowest number of devices</b>	5	0	1

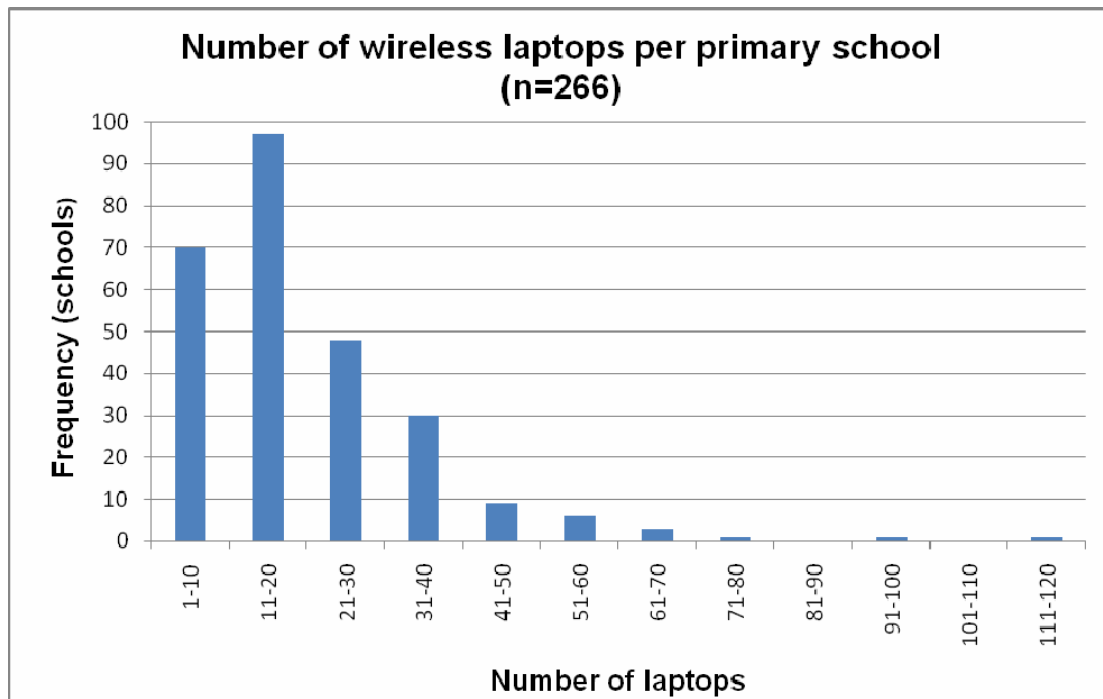


## 7 Number of wireless enabled devices in the schools

### Primary schools

	Laptops / tablet PCs	PDA's	Projectors	VoIP telephones	Printers	Registration / attendance devices (dedicated device or laptop/PDA)
<b>Average number</b>	21	1	1	0.06	1	0.15
<b>Highest number of devices</b>	120	54	24	8	21	36
<b>Lowest number of devices</b>	1	0	0	0	0	0
<b>% of schools with this device</b>	100	11	19	2	26	2

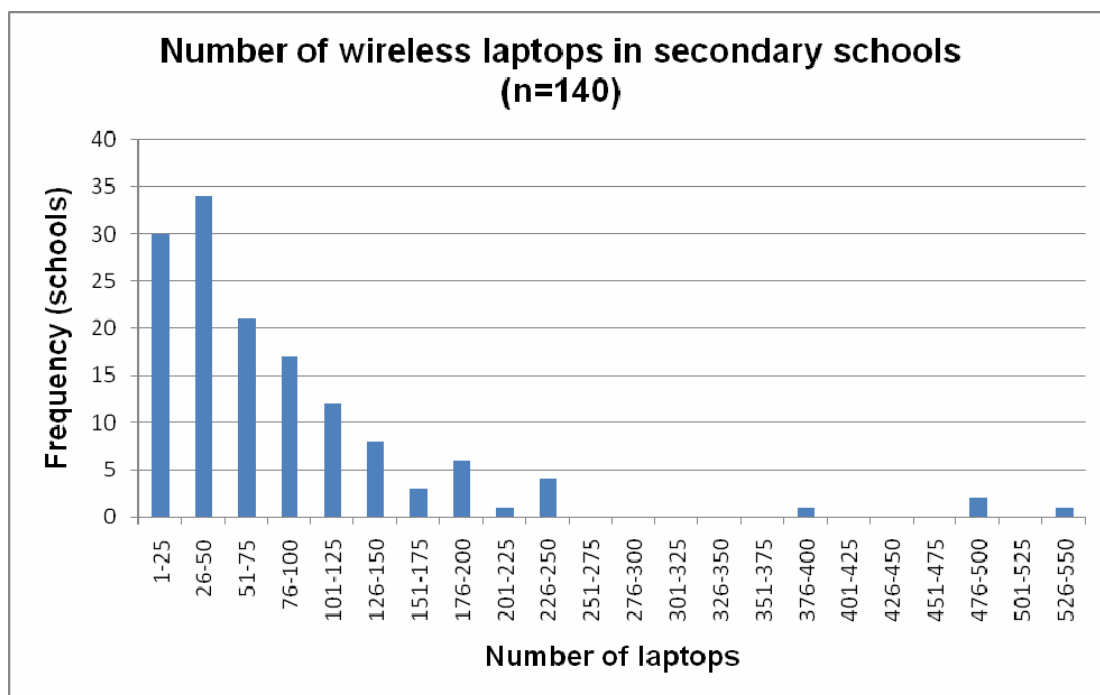




'Other' wireless devices included: cameras, desktop PCs, photocopiers and visualisers.

### Secondary schools

	Laptops / tablet PCs	PDAs	Projectors	VoIP telephones	Printers	Registration / attendance devices (dedicated device or laptop/PDA)
<b>Average number</b>	86	3	2	1	3	9
<b>Highest</b>	550	100	65	100	100	200
<b>Lowest</b>	1	0	0	0	0	0
<b>% of schools with this device</b>	100	29	17	6	21	11



'Other' wireless devices included: cameras, CCTV, desktop PCs, mobile phones and Sony PSP/Nintendo DS.

## 8 Percentage of schools employing central management tools for their wireless network

	Yes	No
Primary	9%	91%
Secondary	19%	81%

## 9 Processes that informed the wireless implementation

	Independent site survey	LA advice	Supplier advice	Directly from Becta specifications	Other
Primary	24%	27%	44%	7%	23%
Secondary	29%	12%	58%	11%	24%

'Other' included: in-house expertise

## 10 How the wireless network performed in terms of...

### Primary schools

	Worse than expected	As expected	Better than expected
...speed	15%	74%	11%
...delivery of applications and content	11%	82%	7%
...reliability of connections	31%	60%	9%
...number of concurrent users supported	13%	79%	8%
...coverage	19%	67%	14%
...ease of management	17%	74%	9%

## Secondary schools

	<b>Worse than expected</b>	<b>As expected</b>	<b>Better than expected</b>
...speed	23%	74%	4%
...delivery of applications and content	22%	77%	1%
...reliability of connections	36%	62%	3%
...number of concurrent users supported	19%	76%	5%
...coverage	38%	54%	8%
...ease of management	17%	77%	6%

## 11 Are personal devices allowed to be used on the wireless network?

	<b>None allowed</b>	<b>Allow pupil owned devices</b> (equivalent access to school devices)	<b>Allow pupil owned devices</b> (limited access)	<b>Allow teacher owned devices</b> (equivalent access to school devices)	<b>Allow teacher owned devices</b> (limited access)
<b>Primary</b>	75%	1%	0.4%	22%	3%
<b>Secondary</b>	60%	9%	14%	24%	18%

## 12 Elements forming part of the wireless strategy

	Primary	Secondary
Supporting the use of mobile devices	42%	56%
Supporting flexible access in and outside of the classroom	77%	56%
A move to network access across the whole institution	29%	40%
A move to wireless access across the whole institution	37%	30%
A move to all learner devices being portable wireless clients	12%	9%
Supporting administrative functions	9%	34%
Supporting the use of ICT in ordinary classrooms	81%	66%
To overcome issues with installing a wired network	34%	34%
Supplementing a municipal wireless access project	3%	3%
Other	3%	3%
Don't know/no response	3%	12%

'Other' included: temporary solution during building works; to link to photocopier; to support teacher laptops; no room for ICT suite; back-up to wired network; linking buildings.

## 13 Is the strategy in a formal document?

	Yes	No	Don't know
<b>Primary</b>	23%	74%	4%
<b>Secondary</b>	25%	70%	5%

## 14 Factors that discouraged the use of wireless

This question only relates to the 30 per cent of primary schools and 20 per cent of secondary schools in the survey that did not have a wireless network.

	<b>Fast changing standards</b>	<b>Cost</b>	<b>Health and safety concerns</b>	<b>No perceived need</b>	<b>Lack of technical expertise/support</b>	<b>Other</b>
<b>Primary</b>	16%	58%	7%	34%	27%	31%
<b>Secondary</b>	18%	59%	18%	33%	41%	24%

### 'Other' for primary included:

Buildings issues	10%
Security/privacy issues	4%
Reliability issues	6%
Experience	5%

### 'Other' for secondary included:

Buildings issues	56%
Security/privacy issues	9%
Reliability issues	3%
Experience	3%