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Local Counsel for Plaintiffs

United States District Court

District of Oregon

Portland Division

AHM, by and through
her Guardian *ad litem* and father,
David Mark Morrison**,** and
David Mark Morrison, individually,

v.

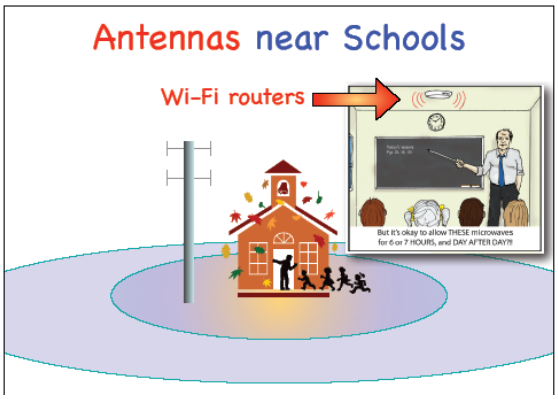
Portland Public Schools,

Defendant.

Civil Action No. 3:11-cv-00739-MO

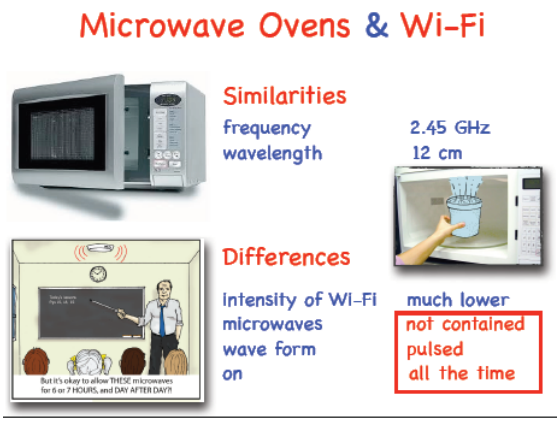
Declaration of
Dr. Magda Havas, B.Sc., Ph.D.
Addendum D – Presentation

Addendum D



We don't believe in putting antennas near schools, so why are we so willing to put antennas inside schools? That's right. Wi-Fi routers are microwave antennas.

1.

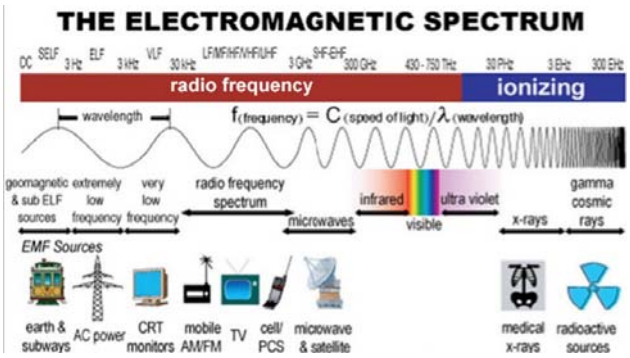


What do microwave ovens and Wi-Fi routers have in common and how do they differ? Both use the same **frequency**, and both have the same **wavelength**. These are the ideal condition for heating water. They differ in that Wi-Fi routers use a **lower intensity** of radiation; the radiation is **not contained**; it consists of **pulsed waves** rather than continuous waves (more about that later); and the WiFi Router is **ON** all the time. For these 3 reasons WI-FI should not be used in schools.

2.

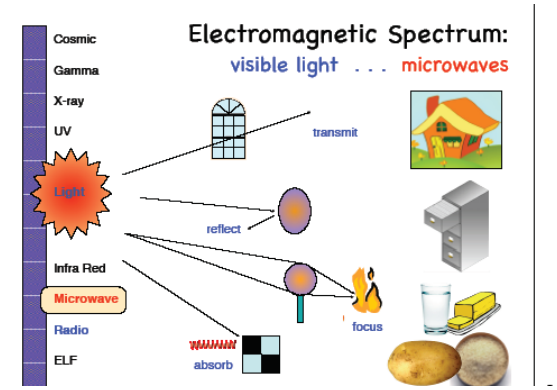
Let's have a microwave cooking lesson. We can bake a potato in a microwave oven set at 100% power within 6 minutes. If we reduce the power to 50% it will take twice as long, or 12 minutes, to bake the potato. This is called the time-weighted exposure. Now, let's replace the potatoes with students and the microwave oven with a school. Students in school are exposed to microwave radiation for 6 h/d, 5d/w for 40 w each year. That comes to 1,200 hours a year. After 10-years they are exposed to microwave radiation for 12,000 hours! Let's put this 12,000 hour into perspective.

3.



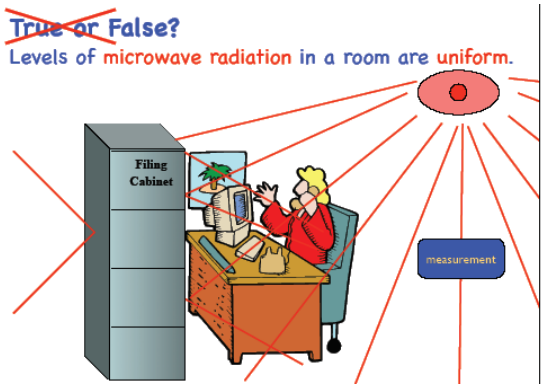
Here we have the electromagnetic spectrum that organizes electromagnetic energy according to frequency and wavelength, with low frequencies at the bottom and high frequencies at the top of this chart. Scientists have given names to different parts of the spectrum that have similar characteristics. At the bottom we have extremely low frequency electromagnetic fields. Then we have a band called radio frequency radiation that overlaps with microwaves and radar. Wi-Fi fits into this category at 2.4 GHz. At even higher frequencies we have ionizing radiation that is known to be carcinogenic. Both radio frequency and extremely low frequency fields are classified as possibly carcinogenic by the WHO.

4.



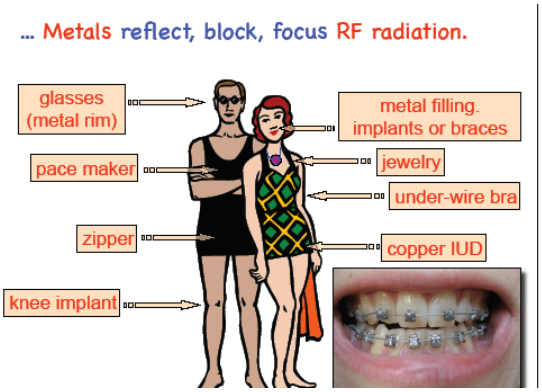
Light is part of the electromagnetic spectrum and **microwave** radiation has **many** of the same characteristics as **light**. For example, **light** can be **transmitted** through windows; **reflected** or **focused** by mirrors and glass, and **absorbed** by dark colors. Similarly, **microwaves** can be **transmitted** through **buildings**, **reflected** and **focused** by **metal**, and they can be **absorbed** by **water** and **fat**. That is why we can cook a potato in a microwave oven but we can't cook dry rice.

5.



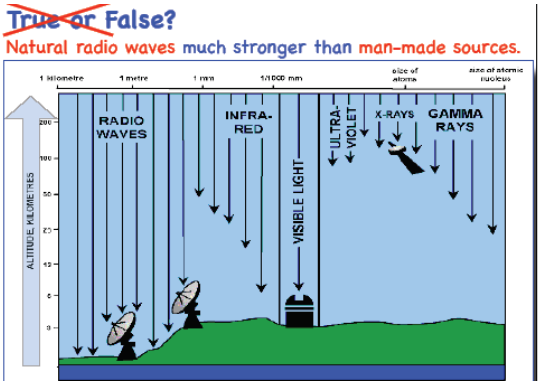
A metal filing cabinet (as well as other metal objects) can either decrease or increase your exposure to Wi-Fi radiation depending on its location relative to you and the router. Taking a measurement in the middle of the room will NOT give the same reading as taking a measurement near a metal object, near your computer, or near the router.

6.



Metal objects on or in your body will also reflect, block or focus microwave radiation. That is why some sensitive people are unable to wear jewelry. A student with a mouth-full of metal braces standing near a router is likely to have higher radiation exposure in the head than a student without braces.

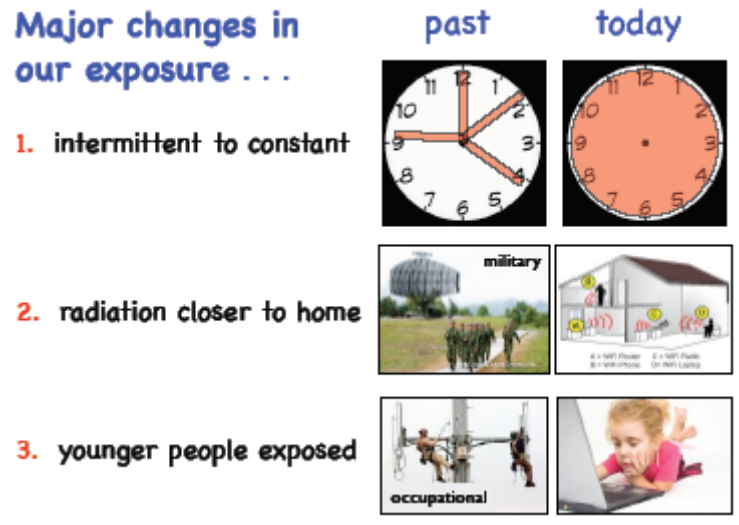
7.



This graph shows altitude above sea-level. Ionizing radiation is largely absorbed by the upper atmosphere and very little reaches the earth's surface. The same is true for infra-red radiation. Both light and radio frequency radiation reach the earth's surface. So we are exposed to radio frequencies coming from outer space but these sources are VERY weak. That is why we need large radio telescopes to detect the energy. These microwaves are like whispers from outer space. A cell phone within 10 km of one of these receivers is similar to a shout and would interfere with the signals coming from space. That is why radio telescopes often have an exclusive zone surrounding them to minimize this manmade interference.

[This is animated]

8.

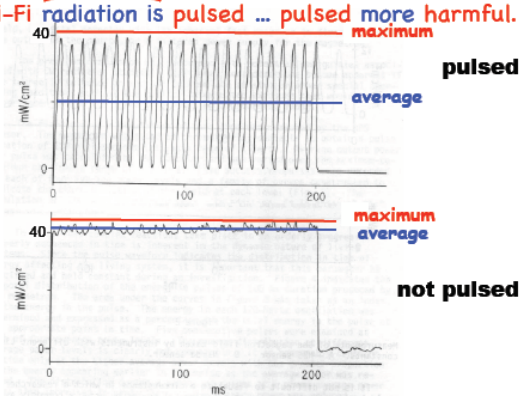


Here are some of the **major changes** in our exposure. **1.** In the past our exposure was **intermittent**. Today it is **constant**. **2.** The radiation is no longer restricted to **military bases** and **airports**. **3.** Today some people have **transmitters inside their homes**. In the past, exposure was limited to a **few noccupations**. Today, **infants & children** are **exposed**.

9.

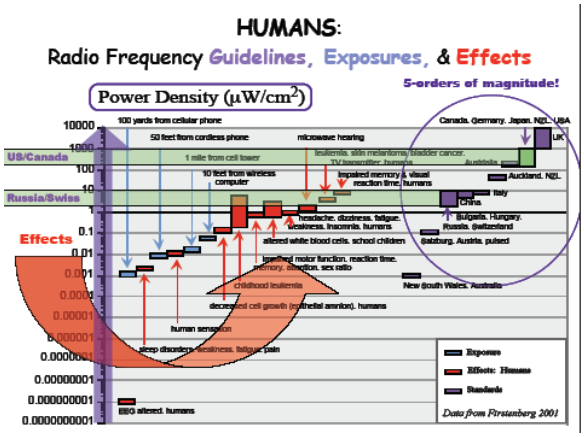
True or ~~False~~?

Wi-Fi radiation is pulsed … pulsed more harmful.



We don't know **all** the reasons why pulsed radiation is more harmful than non-pulsed radiation, but one reason is the way it's **measured**. At the bottom we have radiation that is **not pulsed**. The **maximum** value and the **average** value are quite **similar**. With **pulsed radiation** the maximum or **peak** value is much **higher** than the **average** value and since many health authorities measure only **average** values they **underestimate exposure considerably**.

10.

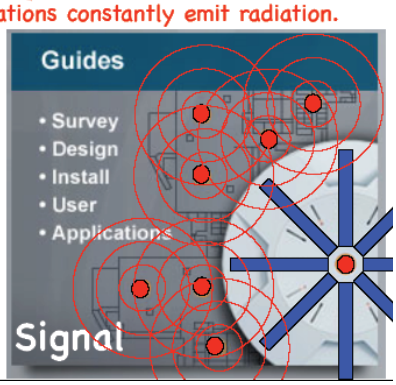


The **intensity** of radio frequency radiation can be measured using **power density**. **Guidelines** in various countries differ 5-orders of magnitude or by a 100,000 units. This is **unheard** of for **chemical** toxicants and for **ionizing radiation** where **standards globally** are **quite similar**. The **worst** guidelines are in the UK but **Canada** and the **US** are not far behind. Guidelines for **Russia** and **Switzerland** are at least 100 times more protective than US guiedlines. These guidelines are NOT **effective** because **adverse effects** occur at **much lower levels** of exposure, as shown in **red**.

11.

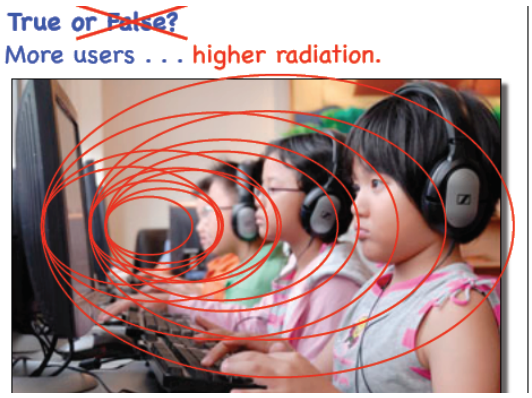
True or ~~False~~?

Wi-Fi base stations constantly emit radiation.



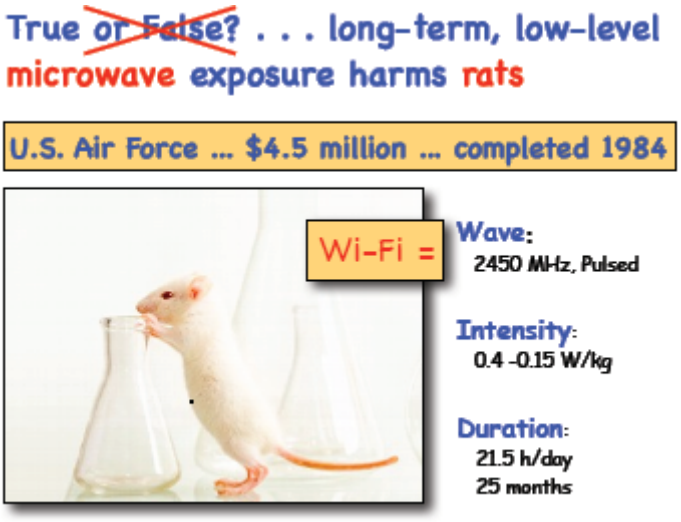
Wi-Fi **base stations** or **routers** in schools have **multiple antennas (shown in blue)**. These antennas emit a **beacon signal (shown in red)**. The routers are placed at various locations as shown in this floor plan. Each **router** emits microwave radiation that is **always on**. With **multiple routers** the entire school is **blanketed** with **microwave** radiation.

12.



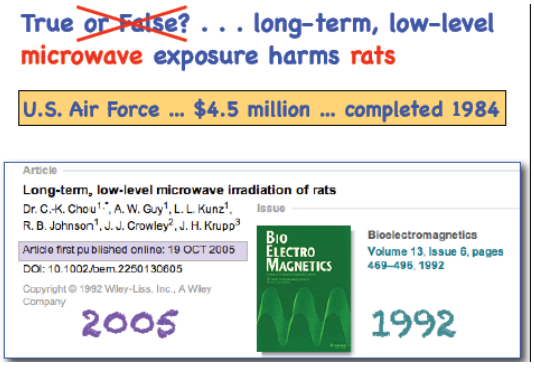
And the **closer** students are to each other, the **higher** their **exposure**.

13.



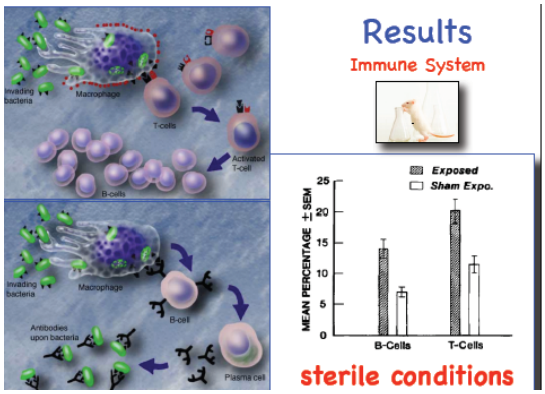
The **U.S. Air Force** completed a study in **1984** at a cost of **$4.5** million dollars. They exposed rats to **pulsed** 2.45 GHz frequencies, which is the same as **Wi-Fi,** at levels **well below US** guidelines, for **21.5 h** daily for **25** months.

14.



The results were published in **1992** and became available on the Internet in **2005**.

15.



16.

The results show that **rats** exposed to **microwave** radiation had **more B-cells** and **T-cells**. These cells are part of the **immune** system and become **activated** when the body detects **unhealthy bacteria**. The **t-cells** alert the **b-cells** that, in turn, produce **antibodies** to attack the **bacteria**. What is **unusual**, is that this experiment was conducted under **sterile** conditions. That is one reason it cost so much money.

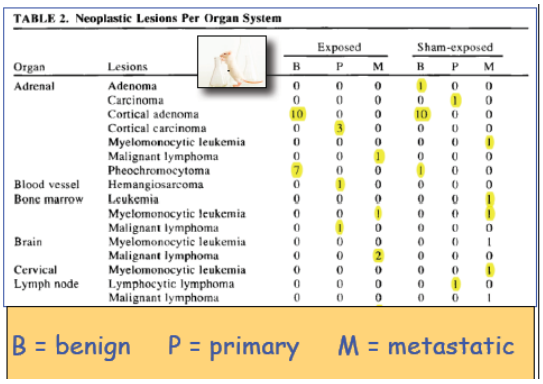


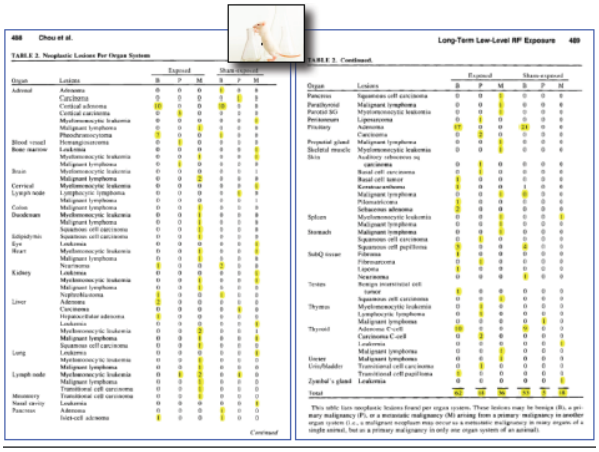
TABLE 2. Neoplastic Lesions Per Organ System

Organ	Lesions	Exposed B	Exposed P	Exposed M	Sham-exposed B	Sham-exposed P	Sham-exposed M
Adrenal	Adenoma	0	0	0	1	0	0
	Carcinoma	0	0	0	0	1	0
	Cortical adenoma	10	0	0	10	0	0
	Cortical carcinoma	0	3	0	0	0	0
	Myelomonocytic leukemia	0	0	0	0	0	1
	Malignant lymphoma	0	0	1	0	0	0
	Pheochromocytoma	7	0	0	1	0	0
Blood vessel	Hemangiosarcoma	0	1	0	0	0	0
Bone marrow	Leukemia	0	0	0	0	0	1
	Myelomonocytic leukemia	0	0	1	0	0	1
	Malignant lymphoma	0	1	0	0	0	0
Brain	Myelomonocytic leukemia	0	0	0	0	0	1
	Malignant lymphoma	0	0	2	0	0	0
Cervical	Myelomonocytic leukemia	0	0	0	0	0	1
Lymph node	Lymphocytic lymphoma	0	0	0	0	1	0
	Malignant lymphoma	0	0	0	0	0	1

B = benign P = primary M = metastatic

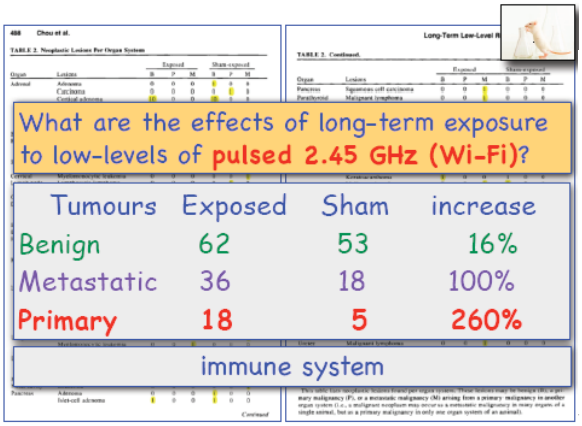
17.

Even **more disturbing results** were the effects on **tumor growth**. **Three** types of tumors were identified in various organs: **benign**, **primary**, and **metastatic** tumors.



18.

A **summary** of the **results** are shown here, in **Table** 2.



What are the effects of long-term exposure to low-levels of **pulsed 2.45 GHz**, the same radiation used for **Wi-Fi**? A **16%** increase in **benign** tumors; a **100%** increase in **metastatic** tumors; a **260%** increase in **primary** tumors; and effects on the **immune system**. Is this what we want to exposure **students** and **teachers** to for **6 hours** each **school** day?

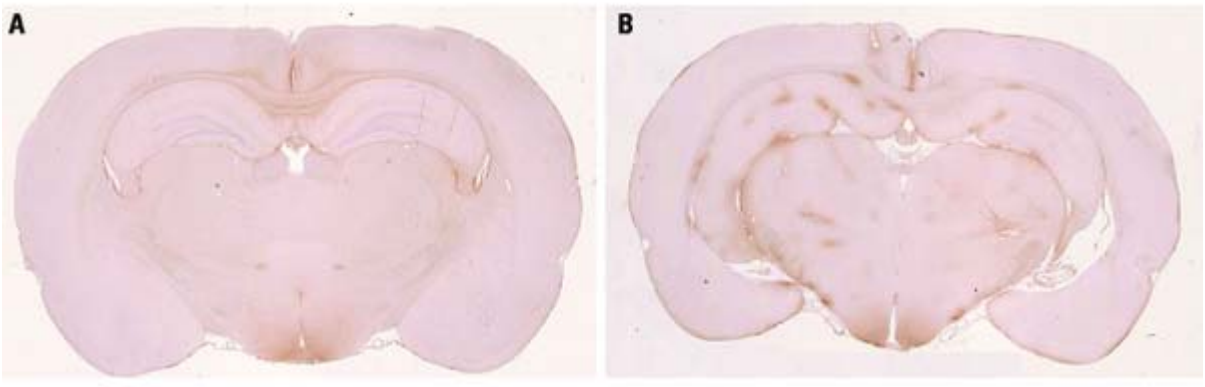
19.

Effects of pulsed

2.4 GHz radiation?

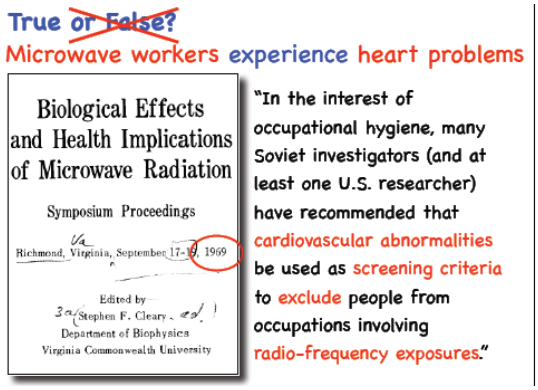
Let's look at **other** effects of pulsed microwave radio frequency radiation.

20.



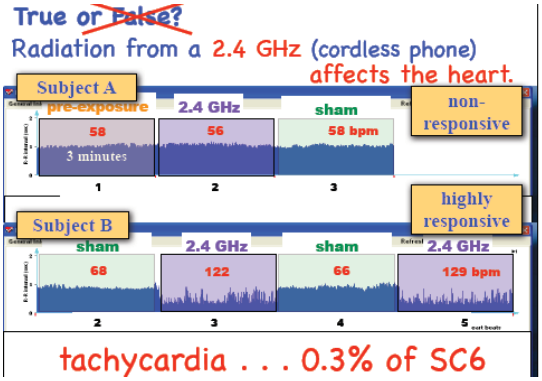
Rat brain with dark spots showing albumin leakage after only two hours of exposure to cell phone radiation, examined 50 days after exposure (Salford 2003).

21.



Studies on the health effects of microwave radiation go back decades although some of the earlier studies were classified. Read what the authors write in this symposium proceedings that was published in **1969.** Scientists knew 42 years ago that **RFR** affects the **heart!**

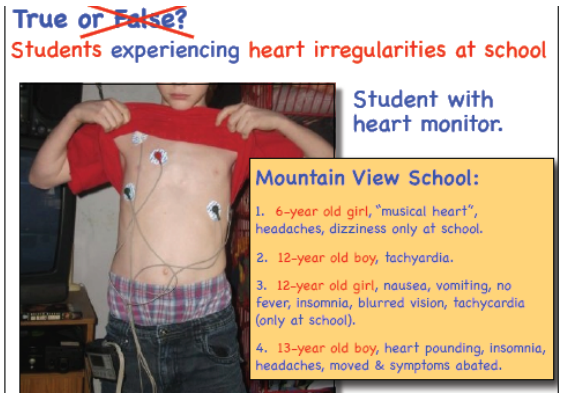
22.



This was a **double blind** study that has been published in a **peer-reviewed** journal. Subject A was wearing a heart monitor and was exposed for **three** 3-minute periods to radiation from a **cordless phone** or to **sham** exposure. The heart rate remained relatively **constant** 58, 56, and 58 beats per minute. This subject was exposed during the **second time-interval** but does **not** respond to the provocation. Subject A is **non-responsive**. Subject B. has a **rapid** heart rate during intervals **3** and **5**, which **coincide** with **exposure** to the **cordless** phone. This subject experienced **tachycardia**, a rapid heart rate, and is **highly reactive**. **Exposure** was at levels **less than 1%** of Health Canada's safety code 6.

[I will demonstrate this direct affect with a WI-FI router]

23.

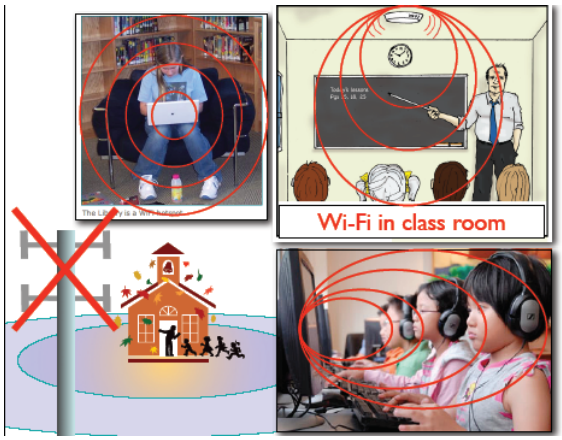


Several students have visited their **pediatric cardiologist** and have worn **heart monitors** to school. Here are the symptoms they experienced.

24.

Some students at Mountainview school are complaining of poor health only while at school. Mountainview school has Wi-Fi installed. To view this video, go to http://www.youtube.com/watch?v=h-TJXRc5fzo

25.



Cell phone antennas should not be placed near schools and **Wi-Fi routers** should not be placed inside schools.

26.

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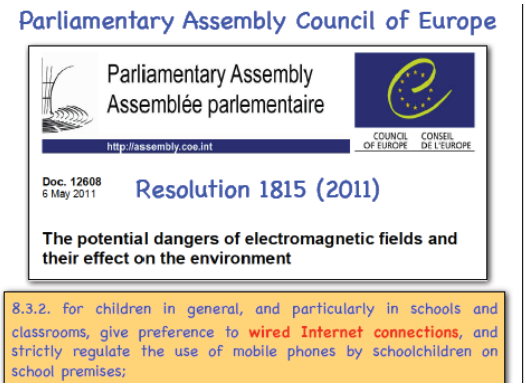
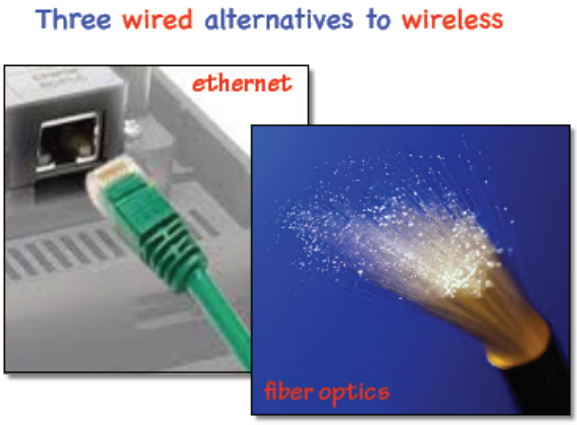


The Parliamentary Assembly Council of Europe agrees about wired connections for Internet access in schools.

27.



There **wired alternatives** to wireless including **Ethernet**, which Mount Tabor Middle School already has, the Wi-Fi is redundant.

28.

29.

Note: I have information to believe there is a video in existence showing ~2000 shows cells under a microscope under exposure to high-frequency RF fields. The living cells spin under such exposure because they have polarity; while dead cells, having lost their polarity, do not spin but are still. Efforts are being made at this time to locate that video, which I will incorporate into this presentation.