A Guide to Choosing an Interactive Whiteboard for the Classroom.
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Introduction

An interactive whiteboard is a powerful tool for developing essential skills in today’s students and helping teachers create fun and engaging lessons.

Extensive research has pointed to the fact that interactive whiteboards are an effective technology for improving the way students learn using multisensory and hands-on learning. Newsweek magazine recently reported that 70 percent of primary and secondary education institutions in the UK use interactive whiteboards in the classroom to enhance learning.

With the increased use of interactive whiteboards, there comes a broader range of choices on the whiteboard market. This makes choosing the best technology for your classroom a challenging experience.

In this article, we will provide you with a comprehensive overview of interactive whiteboard technologies along with some sound advice on choosing the best whiteboard for your particular classroom requirements.
What is an Interactive Whiteboard? How Does it Work?

Whiteboards have been around for about two decades now, but have grown in popularity within the last few years as more educators realise the benefits the technology has on learning in the classroom. An interactive whiteboard accomplishes improved learning by combining a whiteboard that utilises a touch and stylus pen gestures with software and an LCD projector.

In the typical whiteboard configuration, the projector is mounted on the wall or on a special stand with the whiteboard acting as the computer screen. When used with the intended software applications, a whiteboard is converted to a large interactive computer screen which can be viewed by an entire classroom of students.

The projector is used to display content from a PC on the whiteboard surface while the teacher manipulates the content using touchscreen gestures, hand motions, or a pointing device. The whiteboard becomes interactive through the combination of the projector and software which allows the whiteboard to function as a PC monitor. This means that any activity you can accomplish with a computer monitor, you can do with an interactive whiteboard.

For example, a teacher can integrate multiple applications into a lesson including videos, web pages, images, sounds, music, and more. Students can then respond to the content using interactive gestures, including the capability to add feedback and comments. The whiteboard basically can convert a classroom that has a single PC into a fun and engaging learning environment. Students remain involved in the lesson through multisensory learning and collaboration, regardless if it is a simple math equation or a tour to different parts of the globe using Google Earth.
The Different Types of Interactive Whiteboard Technology

There is a wide variety of interactive whiteboard technology available which captivates students and makes learning much more interesting. The different technologies allow creative modifications to be made including the integration of interactive elements that include laser scanning, touch technology, writing instruments that are electromagnetic, and more.

The following information is an overview of different types of white board technology.

**Resistive Membrane**

A whiteboard that contains resistive membrane has a surface that consists of two panels of resistive materials that are separated by a space. The space creates a membrane that is touch-sensitive and responds to finger gestures or stylus pen movements to make changes to the content. The movement of the gestures is detected by the amount of pressure used by your finger or stylus pen over the resistive membrane surface and by the location.

Although this type of technology is cost effective, the surface is easily prone to marks and other damage. For this reason, many classrooms opt for interactive whiteboards that consist of more durable materials.

**Ultrasonic**

A whiteboard that uses ultrasonic technologies is designed with ultrasonic transmitters and receivers at each corner of the whiteboard. The surface transmits ultrasonic signals so that any gestures on the edges of the whiteboard create ultrasonic waves that are detected by the transmitters over a variety of distances. The waves are subdued when you press on the surface of the whiteboard before the information is communicated by the ultrasonic receiver to the controller.

**Electromagnetic**

Electromagnetic whiteboards consist of a harder surface which is backed with a grid of electronic wires that interact with the coil on a stylus pen. The coil helps the grid wires identify the X and Y coordinates on the pen. You can also opt to use a magnetic pen which interacts with the magnetic sensors built into the whiteboard that detect the motions of the pen and send it back to the computer. For this type of technology, you must use a pen since the configuration is incapable of sensing touch gestures and pointing devices.
Infrared
An infrared whiteboard uses infrared optical technology on any type of whiteboard surface. The technology tracks the touch gestures or stylus pen movements on the surface. When you press on the whiteboard surface, the stylus pen or your finger recognises the infrared light before the information is processed by the software to track the movements of the stylus pen or your finger.

Laser Scanner
This type of technology uses laser light and laser technology which is distributed near the edges of the whiteboard. The laser scanners which are located on the frame of the whiteboard integrate with a felt stylus pen with reflective technology that reflects the laser light back on the frame. This tracks the movement of stylus on the surface of the whiteboard and registers the location of the pen, as well as the colors being used.

Digital
An interactive whiteboard with digital technology requires a digital pen equipped with infrared cameras. When the digital pen is used on the whiteboard surface, the pattern of the pen movements is accurately tracked. This type of technology is quite precise and capable of picking up even the smallest of movements such as a period at the end of a sentence.

Wii Remote
Interactive whiteboards that function on Wii Remote technology use a specialised infrared pen equipped with three components that include the power source, infrared light emitting diode, and a momentary switch. The pen is used in conjunction with open source software and a Wii Remote. The Wii Remote is connected to a PC using a Bluetooth connection and functions with an infrared light tracking camera that detects the movements of the infrared pen on the whiteboard surface.

It is also important to mention there are basically two types of interactive whiteboards which include front projection and rear projection. Front projection whiteboards use a projector that is situated in front of the whiteboard surface which can cast a shadow when the teacher is standing in front of the board. In this situation, you can also opt to use an UST (Ultra Short Throw) projector which is positioned above the whiteboard to reduce the effect of shadows.

A white board that uses a rear projector does not cast shadows since the projector is positioned behind the whiteboard surface. It also makes it more comfortable for the teacher since they do not have to face the projector light while delivering a classroom lesson.
What is the Average Cost?

The average cost of an interactive whiteboard depends upon the type of technology you choose, in addition to whether the whiteboard has front projection or rear projection. In terms of projection, a whiteboard with rear projection typically costs more than a whiteboard with front projection.

Additionally, since an interactive whiteboard typically consists of four components which include the projector, whiteboard screen, computer, and type of software, there are a lot of factors that come into the equation when determining cost. These include the type of computer being used, type of whiteboard technology, front or rear projection, and types of software being used. Price also depends upon whether you are using a fixed or portable whiteboard and the size of the unit.

If you are purchasing the whiteboard screen alone, prices can start around £475 for a whiteboard with front projection and range as high as £3000 or more. For a whiteboard with rear projection the price can be significantly more depending upon the size of the screen and technology being used. Portable whiteboards generally start at around £299 and can range as high as £599.

In most cases, if you do your homework on pricing you can find interactive whiteboard bundle offers that include the projector and other components. For example, you might find an interactive whiteboard for £1315 as a standalone unit but the company may offer you a bundle that includes a projector, wall arm, and stylus for £1915. This is significantly less than if you purchased each component separately.

The key is to become familiar with prices as separate units and then compare and contrast costs among suppliers, as well as package bundles offered by each company. This will provide you with the best deal and the most appropriate solution for your classroom environment.
Fixed or Mobile? What Size Whiteboard Should You Choose?

Interactive whiteboards can be purchased in both a fixed or mobile design. For teachers that are mobile and travel to more than one classroom throughout the day, a mobile whiteboard would be the most obvious choice. For a large classroom with a sizeable student body, a larger fixed whiteboard would probably be more suitable.

Additionally, in schools with limited technology budgets a mobile whiteboard may be the more economical choice because it can be shared among classrooms. Mobile whiteboards come in broad range of sizes from those that fit on a desktop to portable easel styles, and mobile whiteboards on wheels.

Regardless if you choose fixed or mobile, interactive whiteboards are offered in an endless array of sizes and models. The best way to determine the appropriate size is to first determine how you are going to use the whiteboard in your classroom. For example, if you have a large group and want to offer interactive lessons with multiple applications, a larger whiteboard will provide the space you need to offer fun and engaging lessons.

If you have a midsized or small group, a portable white board may do just fine. If you are offering one-on-one personalised help and tutoring, a mobile whiteboard designed for personalised use will serve your intended purpose. Interactive whiteboards can be as small as 16 inches and range as large as 84 inches or more.
What About Software?

Interactive whiteboards are designed for a variety of software applications that deliver their own unique learning experience. There are software applications that support touch gestures and stylus pen use, brainstorming, digital storytelling, group discussions, subject-specific lessons, multimedia presentations, and more.

The best types of software applications for interactive whiteboards facilitate interaction, improve understanding of lesson concepts, address different types of learning styles, accommodate different learning technologies, integrate multiple types of content and classroom resources, support learning in real-time, and increase student involvement in learning.

You can find specific types of software for interactive whiteboards in educational publications, professional educator affiliations, and suppliers of interactive whiteboards and whiteboard software. There is a broad range of software that helps you to create fun and interesting ways to offers lessons in everything from mathematical equations, problem solving, geography, scientific experiments, reading exercises, assistive learning topics, and much more. The nice part is there is a variety large enough to meet specific learning needs of every student in your classroom.
**Recommended Brands**

Just like interactive whiteboard software, there is a broad range of interactive whiteboard companies that manufacture units of all sizes. Like anything else, there are solid whiteboard companies and mediocre ones as well. In this section, we will talk about the three top interactive whiteboard companies and mention some of the top model whiteboards for each.

**SMART**: SMART Technologies was one of the first companies to introduce the whiteboard in 1991. The SMART Board interactive whiteboard is widely used around the globe in many classroom environments for delivering dynamic lesson content. The top SMART Board model is currently the 885ix2 interactive whiteboard system which supports multi-touch functionality with a widescreen surface and a UST projector. It supports the use of stylus pen or finger gestures that allow you to easily move objects around on the board. It is also accompanied by educational resources that are ready to use with access to host of multimedia content.

Visit the official SMART website [here](http://smart.com/).
Promethean: Promethean is a top interactive whiteboard company that offers a range of different whiteboard systems. Its top of the line interactive whiteboards include the ActivBoard system which is offered in a series of products ranging from an entry level system to the ActivBoard Pro 500 which offers both multi-touch functionality with ActivPen capability to provide an authentic collaborative learning experience. The Pro 500 is offered in mount, fixed, adjustable, or mobile models ranging in size from 78 to 95 inches and accommodates up to four students simultaneously.

Visit the official Promethean website here.

Numonics: Numonics is a 40 year old company that began with manufacturing measurement devices for the medical profession before they developed the very first pen centric interactive whiteboard in 1994. Its signature product is its virtual interactive whiteboard that uses electromagnetic technology combined with a multimedia pen. It provides teacher with control over all learning functions while delivering a classroom lesson. The virtual whiteboard is known as the Intelliboard and functions as a large interactive projector screen with dual pen functionality.

Visit the official Numonics website here.
What Activities Can an Interactive Whiteboard Be Used For?

The sky is the limit when it comes to the number of classroom activities that can be integrated with an interactive whiteboard to make learning fun and engaging. Teachers can create interesting lessons using multimedia content including video and audio, and set up exciting virtual field trips to any location around the globe.

An interactive whiteboard can also be used to gauge student achievement and the student’s sense of accomplishment by showcasing student presentations, documents, and class projects. You can also encourage collaboration and brainstorming on projects for multiple student groups, as well as engage student tutors that are knowledgeable in a specific area to help other classmates.

An interactive whiteboard is also useful for recording lessons that can easily be delivered by substitute teachers. Or, students that are absent on a particular school day can easily pick up lessons and assignments to help them stay up to date with classroom activities.

As you can see, an interactive whiteboard is a powerful tool for enhancing classroom learning and reaching students with many different learning styles. For this reason, the interactive whiteboard has become a priority in most technology budgets throughout schools in the UK and around the world.

Do You Require Assistance?

Our ICT continues to supply, deploy and maintain interactive whiteboard technology for numerous schools, academies and colleges across London and the south east of England. Complete the form below to request a callback from a member of the hardware consultancy team today. Alternatively, visit our interactive whiteboard page to find out more our procurement and installation services.
About Our ICT

Located in the beautiful surroundings of Epping Forest on the East London/Essex border, Our ICT is the trusted ICT partner of choice for an increasing number of schools and other Education establishments located throughout London and the Home Counties. We continue to build long-term working relationships with our clients through the delivery of a consistently high standard of service, working hard to leverage maximum efficiency from your schools annual budget.

Our team of highly experienced Microsoft and Apple certified service desk engineers, field technicians and consultants work closely with teachers, support staff and internal IT managers, providing a comprehensive range of support services and solutions. They retain unequalled knowledge and experience gained from working exclusively within the education sector.

We apply strict internal application and recruitment procedures as part of our safer recruiting policy. In addition, all new and existing members of staff are subject to annual DBS checks.

What Educational establishments does Our ICT support?

**Early Years, Primary and Special schools** – We work closely with teachers and support staff, providing day-to-day curricular support for technology and solutions including but not limited to desktops, tablet devices, interactive whiteboards and learning applications.

**Secondary schools, Academies & Free Schools** – We support and develop your IT staff, providing strategic guidance and expert advice. Helping you to leverage maximum efficiency from your existing resources and effectively introducing new technologies.

**Colleges and Higher Education** – Fully managed project delivery and continuity of service. Ongoing management of large area networks.

**Independent Schools** - We support all types of independent schools, from nursery & pre-prep to preparatory & public schools.
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