



WAGIN DISTRICT HIGH SCHOOL

SEMESTER 2, 2025 OUTLINE

Year 10 DIGITAL TECHNOLOGIES

COURSE OUTLINE

In Year 10, learning in Digital Technologies focuses on further developing understanding and skills in computational thinking such as precisely and accurately describing problems and the use of modular approaches to solutions. It also focuses on engaging students with specialised learning in preparation for vocational training or learning in the senior secondary years.

YEAR 10 ACHIEVEMENT STANDARDS

At Standard, students describe the role of hardware and software in managing, controlling and securing access to data, in networked digital systems. They describe the process of simple compression of data and how content data is separated from presentation data. Students apply techniques for acquiring, storing and validating quantitative and qualitative data from a range of sources, and consider privacy and security requirements. They analyse, visualise and model processes and entities, and their relationships, using structured data. Students create a design for algorithms represented diagrammatically and in structured English, including iteration. They validate algorithms and programs, using commonly accepted methods. Students implement data storage and organisation techniques within a programming environment. They create interactive solutions for sharing ideas and information online, taking into account social contexts and legal responsibilities.

In Digital Technologies, students identify the needs of the client/stakeholder to determine the basis for a solution. They create and critique briefs. Students investigate components/resources to develop increasingly sophisticated solutions, identifying and considering associated constraints. They apply design thinking, creativity, enterprise skills and innovation to develop, modify and communicate design ideas of increasing sophistication. Students design possible solutions, analysing designs against criteria, including functionality, accessibility, usability and aesthetics, using appropriate technical terms and technology. They select, justify and safely implement and test appropriate technologies and processes to make solutions. Students provide relevant analysis of design processes and solutions against student-developed criteria. They work independently, and collaboratively to manage projects, using digital technology and an iterative and collaborative approach. Students consider time, cost, risk, safety, production processes, sustainability and legal responsibilities.

TIMELINE

TERM 3, 2025 - Year 10 DIGITAL TECHNOLOGIES

Wk	Focus Pixar in a Box (Animation) – Term 3	Assessments
1	eSafety & Classroom Rules Students revise how protect their online privacy and personal information that identifies them. Login into DoE and Connect accounts.	Students change passwords. Send Connect message to teacher.
1	Pixar in a Box Pixar in a Box is a behind-the-scenes look at how Pixar artists do their jobs. Students will be able to animate bouncing balls, build a swarm of robots, and make virtual fireworks explode. Unit 1: Orientation Discover Pixar in a Box, a Pixar and Khan Academy collaboration that teaches the art and science behind Pixar movies. Explore the filmmaking process, from storyboarding to rendering, and learn how creativity and technical skills combine to bring animated films to life.	Submission of answers online in Connect class.
2	Unit 2: The art of storytelling What makes for a good story? Learn how a story's structure, characters, visuals, and cinematography contribute to a film's story, and how feedback helps to strengthen a film's storytelling. <ul style="list-style-type: none"> • We are all storytellers • Character • Story structure • Visual language • Film grammar • Pitching and feedback 	Submission of written answers online in Connect class.
3	Unit 3: The art of lighting Without virtual lights, animated films would be as dark as a live action movie would be without actual lights. Pixar's Lighting Artists use light to support the emotion of the story and make the films look and feel believable. In this lesson students will learn about the properties of light and how different types of light sources are used to bring beauty, depth and emotion to Pixar films. <ul style="list-style-type: none"> • Introduction to lighting • The art of lighting 	Submission of written answers online in Connect class. Completion of online computer simulation activities.
4	Unit 4: Simulation A believable world frequently contains objects that need to move in a realistic way but are too complicated or numerous to move individually "by hand" - things like leaves on a tree or hairs on a monster's body. In this lesson, students will learn how Pixar uses computer programming to create believable simulated hair as seen in the film "Brave". <ul style="list-style-type: none"> • Hair simulation 101: Simulation • Code your own simulation: Simulation 	Submission of written answers online in Connect class. Completion of online computer simulation activities.

Wk	Focus Pixar in a Box (Animation) – Term 3	Assessments
5	Unit 5: Colour science Just as dialogue, acting, and music are tools filmmakers use to convey meaning and emotion, colour can be used to the same effect. But determining “colour” is not as simple as saying “red” or “brown” because there are endless shades of colour in the visible spectrum. In this lesson, you will learn how colour is determined partly by the physics of light and partly by how our brains perceive it. <ul style="list-style-type: none"> • Introduction to colour • Colour spaces 	Submission of written answers online in Connect class. Completion of online computer simulation activities.
6	Unit 6: Virtual cameras Just as live-action movies are made using cameras, Pixar uses virtual cameras to “film” their movies, with lenses that act like the real thing. In this lesson, students will experiment with different camera settings like F-stop, focal length and focus to create cool effects in scenes from “Inside Out.” <ul style="list-style-type: none"> • How virtual cameras work • Mathematics of depth of field 	Submission of written answers online in Connect class. Completion of online computer simulation activities.
7	Unit 7: Effects Pixar effects artists create explosions, fire, and water by breaking them down into millions of tiny particles and controlling them using computer programming. In this lesson, students will use basic physics to create mini-special effects like flowing water and exploding fireworks. <ul style="list-style-type: none"> • Introduction to particle systems • The physics of particle systems 	Submission of written answers online in Connect class. Completion of online computer simulation activities.
8	Unit 8: Patterns To make the surfaces of characters or objects seem believable, artists at Pixar take basic patterns and use computer graphics to make those patterns more random. Students use randomness in this lesson, when they make their very own dinosaur skin! <ul style="list-style-type: none"> • Geometry of dinosaur skin • Painting with randomness 	Submission of written answers online in Connect class. Completion of online computer simulation activities.
9-10	Unit 9: Rigging “Rigging” is what Pixar artists call the process that gives characters movement, and it’s a crucial step in making them more realistic and human (even if they’re not actually humans). In this lesson, students will get to use the same toolbox that Pixar uses to animate a desk lamp and make a snowman smile. <ul style="list-style-type: none"> • Introduction to rigging • Code a character 	Submission of written answers online in Connect class. Completion of online computer simulation activities.
On-going	EdAlive Typing Tournament Touch typing lessons and practice.	Speed and accuracy tests after each unit. 1 drill per lesson.
On-going	Effective use of Microsoft 365 Apps and saving work to OneDrive Students to manage and safely use their school accounts in the Microsoft 365 environment. Also, to save their work for accessibility when working individually or collaboratively in online learning environments. All DoE email use is monitored. Students are to follow eSafety guidelines and use their email accounts appropriately.	Students can save work, access, and edit without assistance, while using their email appropriately. https://www.esafety.gov.au/

Grade allocation is 50% for Classwork and 50% for Assessment Tasks.

Dates and assessments are subject to change to meet the needs of the students and the teachers.

TIMELINE

TERM 4, 2025 - Year 10 DIGITAL TECHNOLOGIES

Wk	Focus Pixar in a Box (Animation) – Term 4	Assessments
1-3	Unit 10: Animation Whether it's hand-drawn or done using a computer, animation always has the same goal: to take a series of images and play them back in a sequence. At Pixar, computers help fill in the gaps in those sequences, using mathematical functions – and students will get to try this too, by animating a bouncing ball. <ul style="list-style-type: none"> • Introduction to animation • Mathematics of animation curves 	Submission of written answers online in Connect class. Completion of online computer simulation activities.
3-5	Unit 11: Environment modeling When creating the virtual worlds that their characters live in, technical artists at Pixar look to the natural world for inspiration and mimic it using mathematical formulas. This lesson dives into the math that was used to create the landscapes in "Brave," starting with a single blade of grass. <ul style="list-style-type: none"> • Modeling grass with parabolas • Calculating parabolas 	Submission of written answers online in Connect class. Completion of online computer simulation activities.
5-7	Unit 12: Character modeling To get Pixar characters to not look so "computer-y," artists turn to modeling, creating virtual 3-D shapes on the computer. To smooth those shapes out and make them look even more real, they use a simple algorithm called "subdivision." <ul style="list-style-type: none"> • Modeling with subdivision surfaces • Mathematics of subdivision 	Submission of written answers online in Connect class. Completion of online computer simulation activities.
7-10	Unit 13: Crowds If you need to fill a scene with characters – a school of fish, a mob of monsters, or a cast of robots – students need to design a bunch of simple body parts that can be combined in different ways. Try making their own robot from parts – and share it! <ul style="list-style-type: none"> • Building crowds • Counting crowds 	Submission of written answers online in Connect class. Completion of online computer simulation activities.
On-going	EdAlive Typing Tournament Touch typing lessons and practice.	Speed and accuracy tests after each unit. 1 drill per lesson.
On-going	Effective use of Microsoft 365 Apps and saving work to OneDrive Students to manage and safely use their school accounts in the Microsoft 365 environment. Also, to save their work for accessibility when working individually or collaboratively in online learning environments. All DoE email use is monitored. Students are to follow eSafety guidelines and use their email accounts appropriately.	Students can save work, access, and edit without assistance, while using their email appropriately. https://www.esafety.gov.au/

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