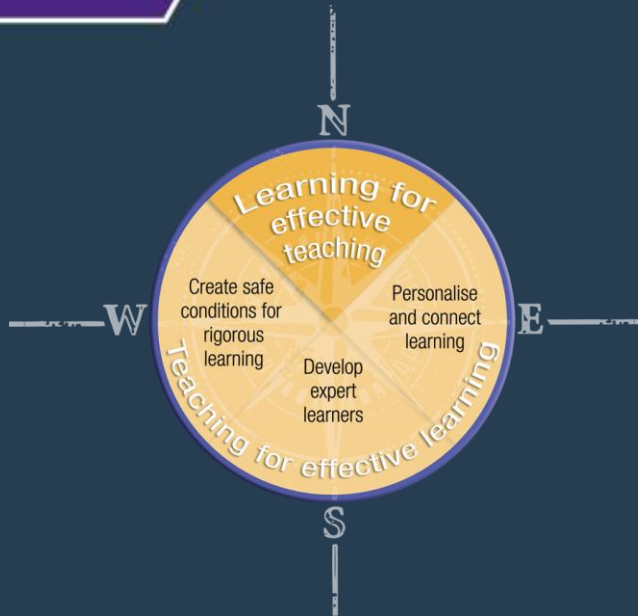


# Learning Design and Makers Empire

DEPARTMENT FOR EDUCATION AND CHILD DEVELOPMENT  
OFFICE FOR EDUCATION



## The Ancient World- Chess



Government of South Australia

Department for Education and  
Child Development

# Learning Design and Makers Empire



MAKERS EMPIRE

LESSON PLAN

The Ancient World - Chess (Year 7 & 8)



# Learning Design – bringing together the ‘what and how’



Why is it important?

What do we want them to learn?

the 'what' – curriculum



How will we know if they got it?



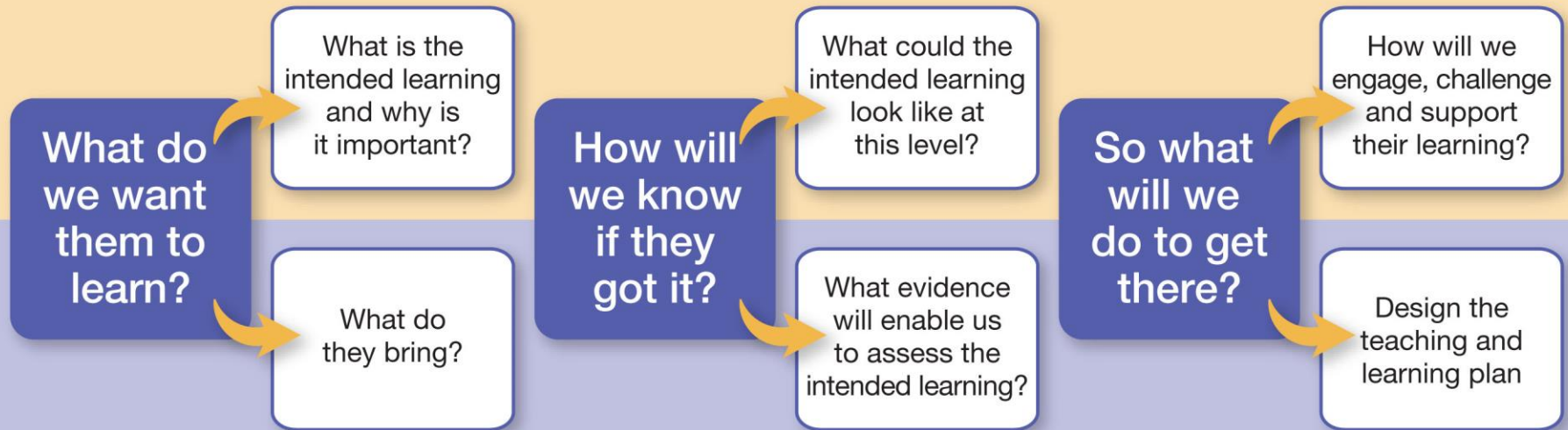
So how will we get there?

The 'how' – pedagogy

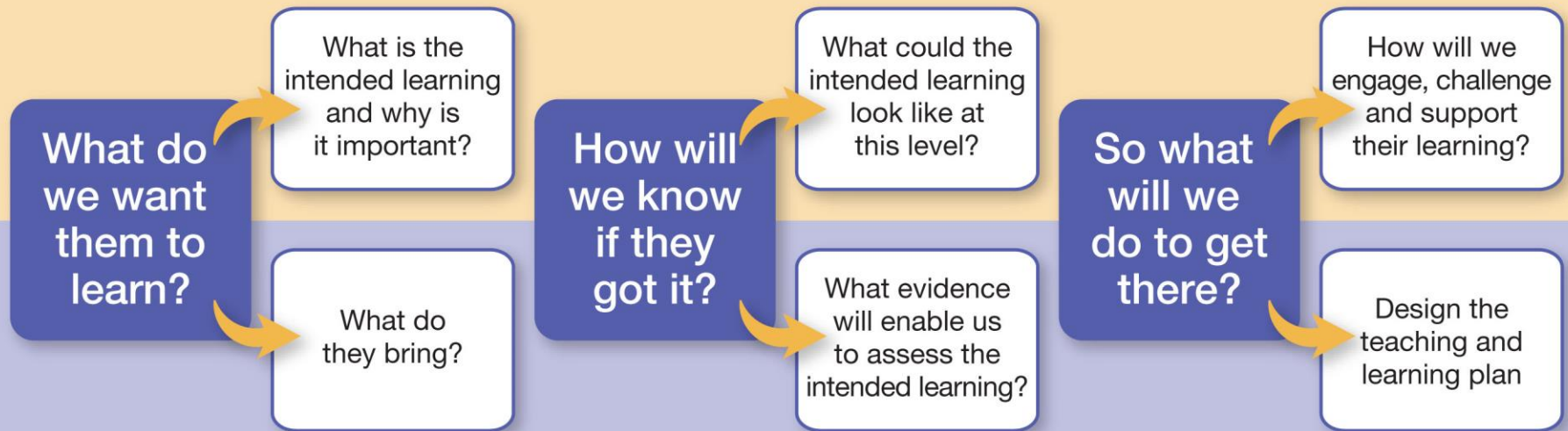
based on McTighe and Wiggins work - Understanding by Design

# Learning Design – bringing together the ‘what and how’

## A thinking map



# Learning Design – bringing together the ‘what and how’ an example



MAKERS EMPIRE

LESSON PLAN

The Ancient World - Chess (Year 7 & 8)

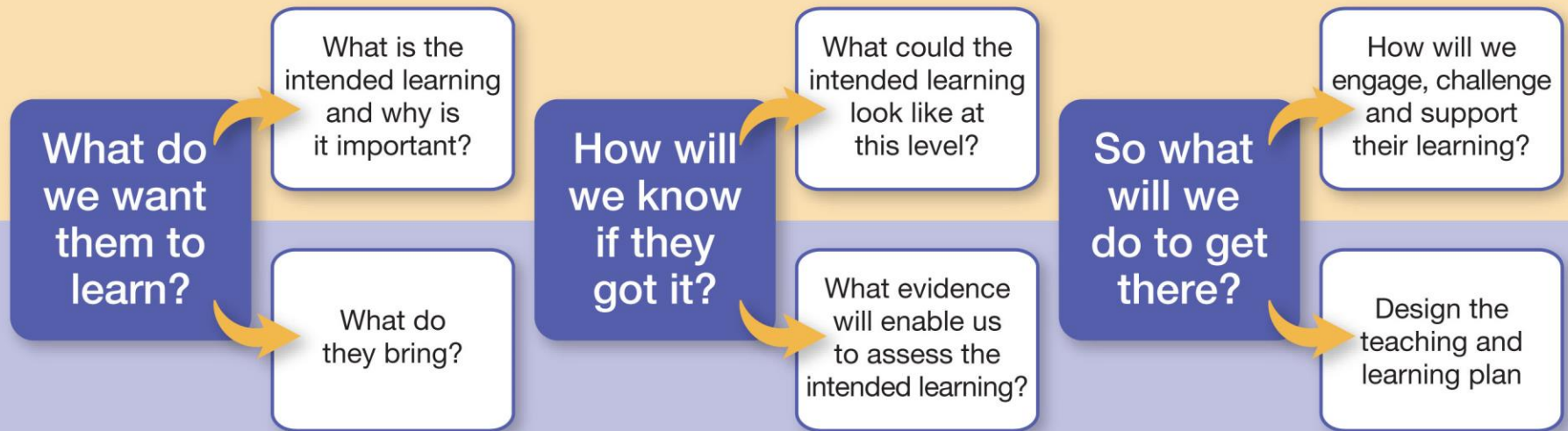


# Learning Design – bringing together the ‘what and how’





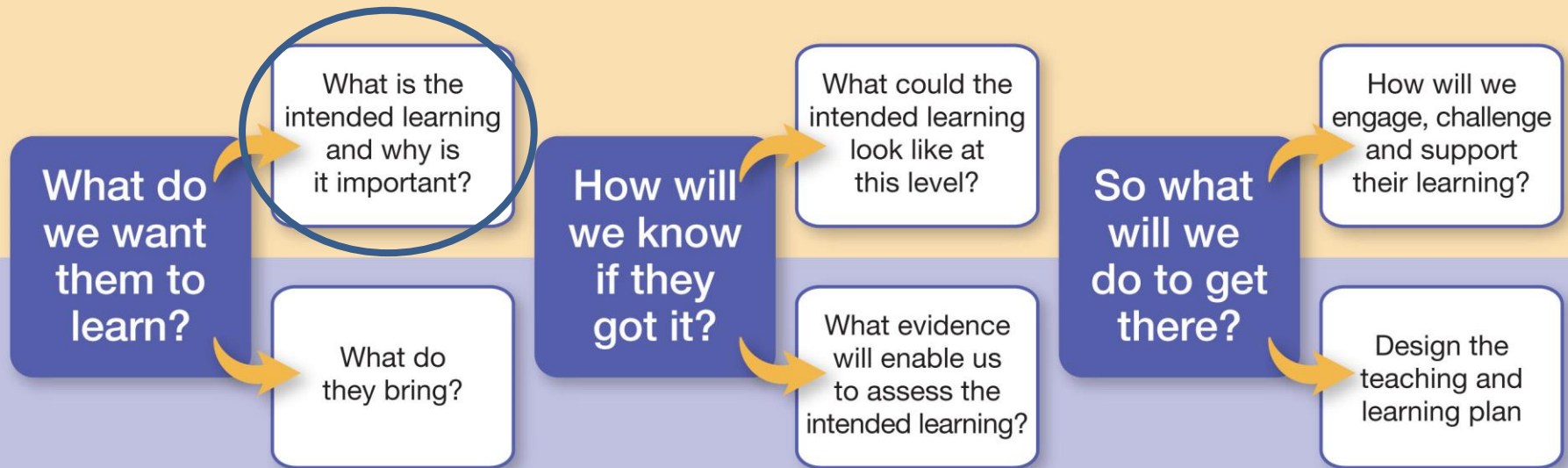
# Learning Design – bringing together the ‘what and how’ **an example**



**Year 7/8**  
**History**  
**Design and Technologies**  
**Visual Arts**



# Learning Design – bringing together the ‘what and how’ an example



**Year 7/8**  
**History**  
**Design and Technologies**  
**Visual Arts**

# What is the intended learning and why is it important?



## History

Year 7

### Key Inquiry Questions

- How do we know about the ancient past?
- Why and where did the earliest societies develop?
- What emerged as the defining characteristics of ancient societies?
- What have been the legacies of ancient societies?

### Year Level Description

#### The Ancient World

The Year 7 curriculum provides a study of history from the time of the earliest human communities to the end of the ancient period, approximately 60 000 BC (BCE) – c.650 AD (CE). It was a period defined by the development of cultural practices and organised societies. The study of the ancient world includes the discoveries (the remains of the past and what we know) and the mysteries (what we do not know) about this period of history, in a range of societies including Australia, Egypt, Greece, Rome, China and India.

# What is the intended learning and why is it important?



## History Year 7

### Knowledge and Understanding Depth Study: The Mediterranean/Asian World

Roles of key groups in ancient Roman society (such as patricians, plebeians, women, slaves), including the influence of law and religion. (ACDSEH038)

Roles of key groups in ancient Egyptian society (such as the nobility, bureaucracy, women, slaves), including the influence of law and religion (ACDSEH032)

Roles of key groups in Chinese society in this period (such as kings, emperors, scholars, craftsmen, women), including the influence of law and religion. (ACDSEH041)

Roles of key groups in Indian society in this period (such as kings, emperors, priests, merchants, peasants), including the influence of law and religion. (ACDSEH044)

### Historical Skills

Identify a range of questions about the past to inform an historical inquiry (ACHHS207)

Identify and locate relevant sources, using ICT and other methods (ACHHS208)

Locate, compare, select and use information from a range of sources as evidence (ACHHS210)

Identify and describe points of view, attitudes and values in primary and secondary sources (ACHHS212)

# What is the intended learning and why is it important?

Year 7/8



Australian  
CURRICULUM

## Design and Technologies

### Band Level Description

In Year 7 and 8 students investigate and select from a range of technologies – materials, systems, components, tools and equipment. They consider the ways characteristics and properties of technologies can be combined to design and produce sustainable designed solutions to problems for individuals and the community, considering society and ethics, and economic, environmental and social sustainability factors. Students use creativity, innovation and enterprise skills with increasing independence and collaboration.

Students respond to feedback from others and evaluate design processes used and designed solutions for preferred futures. They investigate design and technology professions and the contributions that each makes to society locally, regionally and globally through creativity, innovation and enterprise. Students evaluate the advantages and disadvantages of design ideas and technologies.

Using a range of technologies including a variety of graphical representation techniques to communicate, students generate and clarify ideas through sketching, modelling, perspective and orthogonal drawings. They use a range of symbols and technical terms in a range of contexts to produce patterns, annotated concept sketches and drawings, using scale, pictorial and aerial views to draw environments.

With greater autonomy, students identify the sequences and steps involved in design tasks. They develop plans to manage design tasks, including safe and responsible use of materials and tools, and apply management plans to successfully complete design tasks. Students establish safety procedures that minimise risk and manage a project with safety and efficiency in mind when making designed solutions.

# What is the intended learning and why is it important?

Year 7/8



Australian  
CURRICULUM

## Design and Technologies

### Knowledge and Understanding

Analyse ways to produce designed solutions through selecting and combining characteristics and properties of materials, systems, components, tools and equipment (ACTDEK034)

### Processes and Production Skills

Critique needs or opportunities for designing and investigate, analyse and select from a range of materials, components, tools, equipment and processes to develop design ideas (ACTDEP035)

- Generate, develop, test and communicate design ideas, plans and processes for various audiences using appropriate technical terms and technologies including graphical representation techniques (ACTDEP036)
- Effectively and safely use a broad range of materials, components, tools, equipment and techniques to make designed solutions (ACTDEP037)

# What is the intended learning and why is it important?



Year 7/8 Visual Arts

## Band Level Description

Students build on their awareness of how and why artists, craftspeople and designers realise their ideas through different visual representations, practices, processes and viewpoints. They extend their thinking, understanding and use of perceptual and conceptual skills. They continue to use and apply appropriate visual language and visual conventions with increasing complexity. Students consider the qualities and sustainable properties of materials, techniques, technologies and processes and combine these to create and produce solutions to their artworks. They consider society and ethics, and economic, environmental and social factors. They exhibit their artworks individually or collaboratively, basing the selection on a concept or theme. Students document the evolution of selected art styles and associated theories and/or ideologies. They reflect on the 'cause and effect' of time periods, artists and art styles influencing later artists and their artworks.

As they experience visual arts, students draw on artworks from a range of cultures, times and locations. They explore the influences of Aboriginal and Torres Strait Islander Peoples, and those of the Asia region. Students learn that Aboriginal and Torres Strait Islander people have converted oral records to other technologies. As they explore different forms in visual arts, students learn that over time there has been further development of techniques used in traditional and contemporary styles. They identify social relationships that have developed between Aboriginal and Torres Strait Islander people and other cultures in Australia, and explore how these are reflected in developments in visual arts.

As they make and respond to visual artworks, students design, create and evaluate visual solutions to selected themes and/or concepts through a variety of visual arts forms, styles, techniques and/or processes. They develop an informed opinion about artworks based on their research of current and past artists. Students examine their own culture and develop a deeper understanding of their practices as an artist who holds individual views about the world and global issues. They acknowledge that artists and audiences hold different views about selected artworks, given contexts of time and place, and established ideologies.

Students extend their understanding of safe visual arts practices and choose to use sustainable materials, techniques and technologies. Their understanding of the roles of artists and audiences builds upon their experience from the previous band.

# What is the intended learning and why is it important?



Year 7/8 Visual Arts

## Knowledge and Skills

Develop planning skills for art-making by exploring techniques and processes used by different artists (ACAVAM120)

Practise techniques and processes to enhance representation of ideas in their art-making (ACAVAM121)



# What is the intended learning and why is it important?

Level 4



Australian  
CURRICULUM

## Information and Communication Technology (ICT) capability



Locate, generate and access data and information:

locate, retrieve or generate information using search engines and simple search functions and classify information in meaningful ways

Generate solutions to challenges and learning area tasks:

design and modify simple digital solutions, or multimodal creative outputs or data transformations for particular audiences and purposes following recognised conventions

# What is the intended learning and why is it important?



History

Design and Technologies

Visual Arts

Information and Communication Technology (ICT) capability



1. What roles did key groups play in an ancient society (Roman, Greek, Egyptian, Chinese or Indian)?
2. How do artistic styles and symbols represent the beliefs, values and practices of an ancient society?
3. In what ways does the game of chess help us understand ancient societies?
4. How can we best design chess pieces that represent the social roles of key groups and the artistic style of an ancient society?

# What is the intended learning and why is it important?

1. What roles did key groups play in an ancient society (Roman, Greek, Egyptian, Chinese or Indian)?
2. How do artistic styles and symbols represent the beliefs, values and practices of an ancient society?
3. In what ways does the game of chess help us understand ancient societies?
4. How can we best design chess pieces that represent the social roles of key groups and the artistic style of an ancient society?

How would our lives be different without this skill, knowledge, understanding? What could we not do?

Where do we see this learning demonstrated in our everyday lives?

# What is the intended learning and why is it important?

How would our lives be different without this skill, knowledge, understanding? What could we not do?

Where do we see this learning demonstrated in our everyday lives?



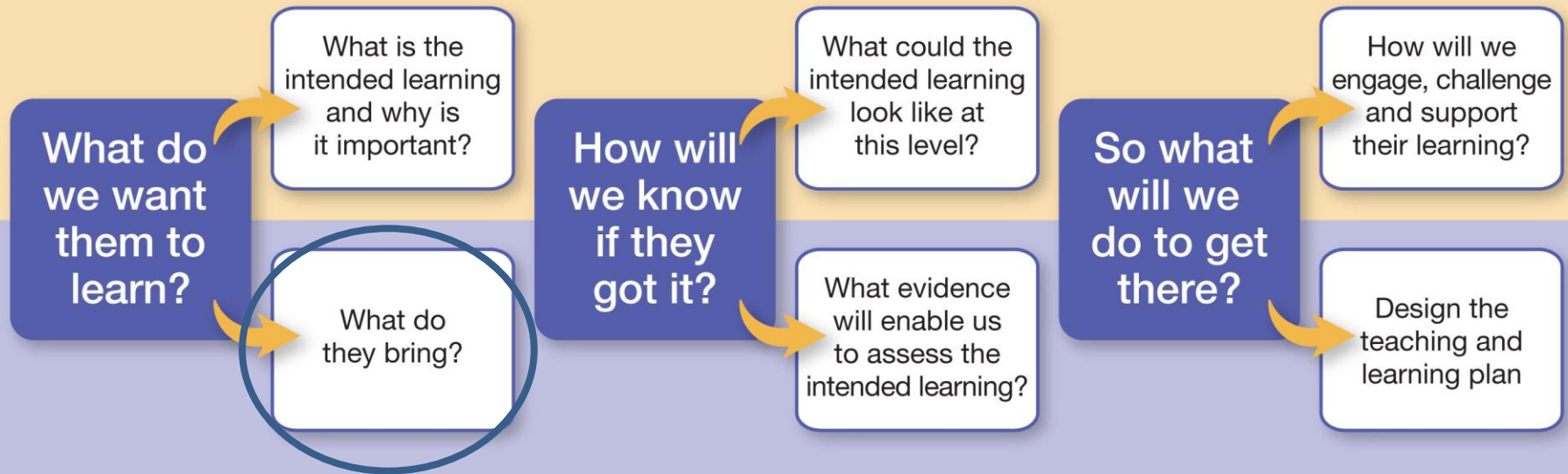
For example:  
Awareness that we are all part of a global society influenced by the legacies of the ancient past.

Understanding that we all have a role in the societies we belong to that come with roles and responsibilities.

Challenging stereotypes about roles in contemporary society.

Having a strong sense of identity and belonging within society.

# Learning Design – bringing together the ‘what and how’ an example



MAKERS EMPIRE

LESSON PLAN

The Ancient World - Chess (Year 7 & 8)



# What do the learners bring?

## Prior knowledge

- Ancient societies
- Artistic symbols and styles
- Design principles

## Interests/experiences

- Chess game
- Strategy games
- Ancient history movies
- Design apps

## Learner dispositions

- Collaborative group work
- Creative thinking
- Conceptual understandings

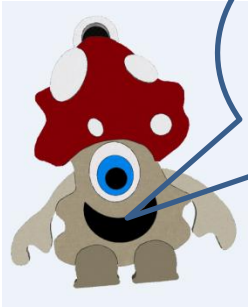
## Misconceptions

- Eg. Chess was invented just as a fun game
- Ancient art was just for decoration

- Skills
- Values
- Attitudes



# What do the learners bring? How can we find out?



Kings were powerful in ancient times. The game shows how everyone had to protect the king.

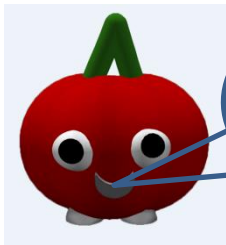


Nothing...it's only a game!

It's like a miniature version of an ancient society.

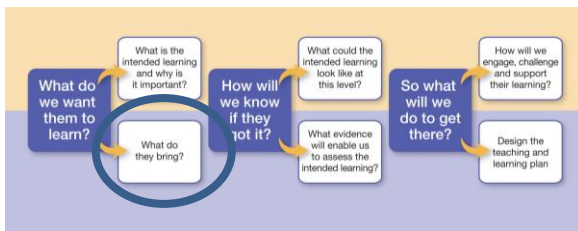
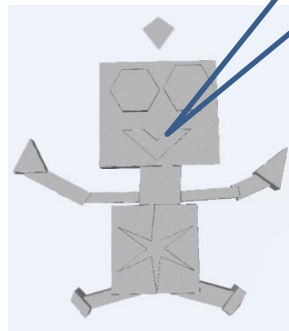


In what ways does the game of chess help us to understand ancient societies? **What do you think?**



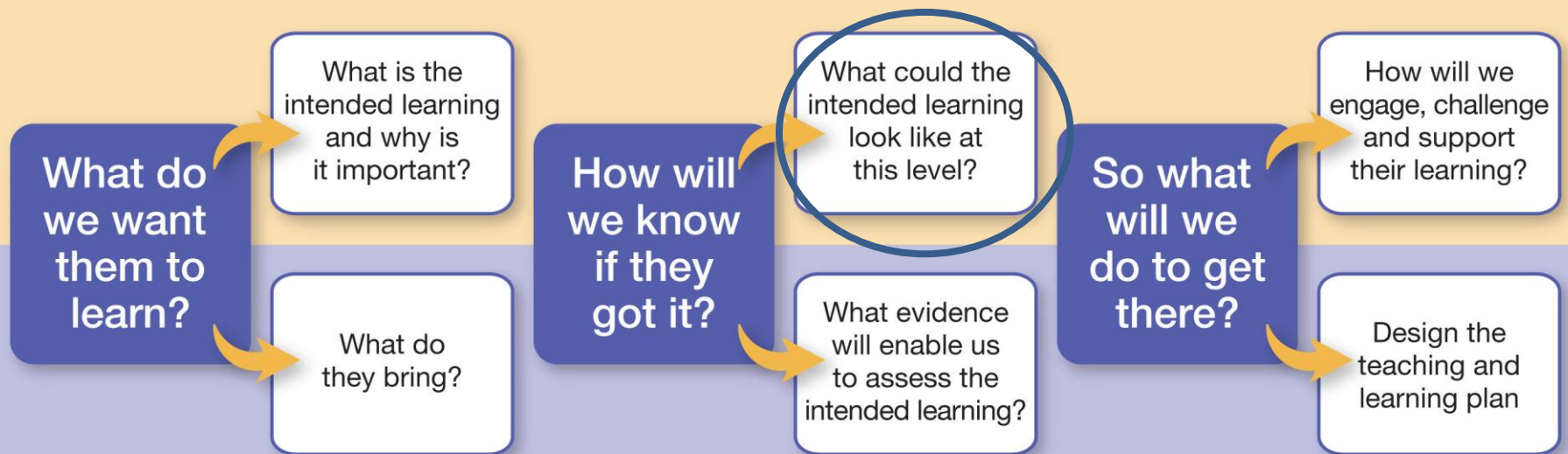
It's a game of strategy and tactics, I think ancient armies used it to help them win wars.

?





# Learning Design – bringing together the ‘what and how’ an example



MAKERS EMPIRE

LESSON PLAN

The Ancient World - Chess (Year 7 & 8)



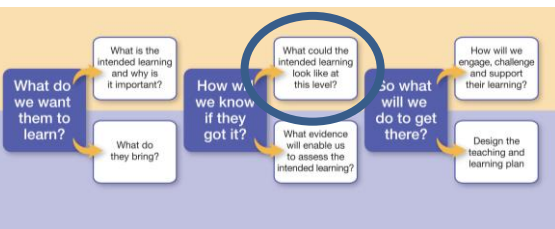
# What could the intended learning look like at this level?



## Year 7 Achievement Standard

By the end of Year 7, students suggest reasons for change and continuity over time. They describe the effects of change on societies, individuals and groups. They describe events and developments from the perspective of different people who lived at the time. Students explain the role of groups and the significance of particular individuals in society. They identify past events and developments that have been interpreted in different ways.

Students sequence events and developments within a chronological framework, using dating conventions to represent and measure time. When researching, students develop questions to frame an historical inquiry. They identify and select a range of sources and locate, compare and use information to answer inquiry questions. They examine sources to explain points of view. When interpreting sources, they identify their origin and purpose. Students develop texts, particularly descriptions and explanations. In developing these texts and organising and presenting their findings, they use historical terms and concepts, incorporate relevant sources, and acknowledge their sources of information.



# What could the intended learning look like at this level?

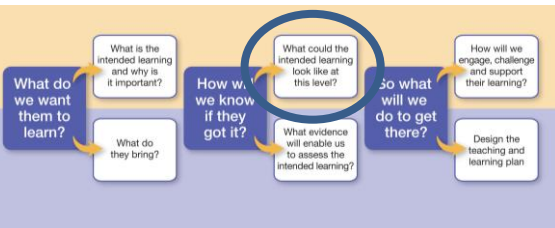


## Design and Technologies

### Years 7 and 8 Achievement Standard

By the end of Year 8 students explain factors that influence the design of products, services and environments to meet present and future needs. They explain the contribution of design and technology innovations and enterprise to society. Students explain how the features of technologies impact on designed solutions and influence design decisions for each of the prescribed technologies contexts.

Students create designed solutions for each of the prescribed technologies contexts based on an evaluation of needs or opportunities. They develop criteria for success, including sustainability considerations, and use these to judge the suitability of their ideas and designed solutions and processes. They create and adapt design ideas, make considered decisions and communicate to different audiences using appropriate technical terms and a range of technologies and graphical representation techniques. Students apply project management skills to document and use project plans to manage production processes. They independently and safely produce effective designed solutions for the intended purpose.



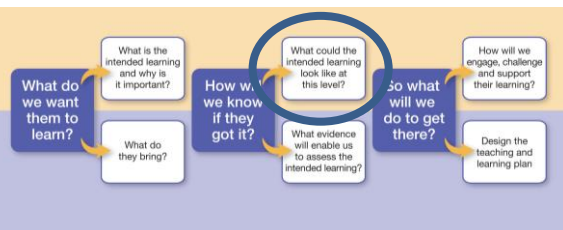
# What could the intended learning look like at this level?



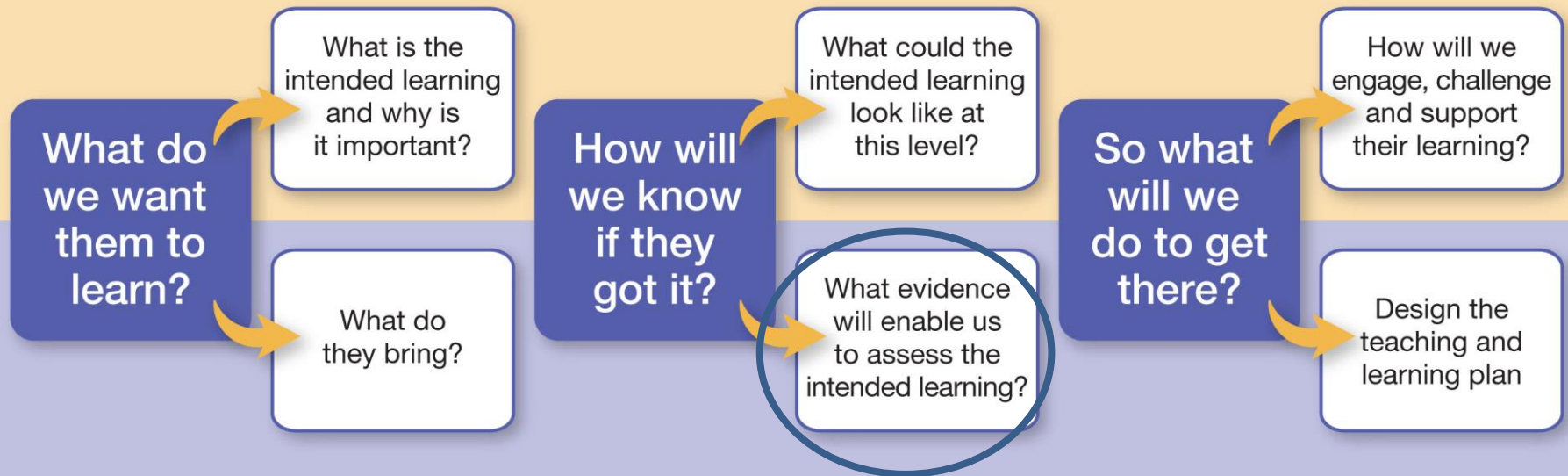
## Years 7 and 8 Achievement Standard

By the end of Year 8, students identify and analyse how other artists use visual conventions and viewpoints to communicate ideas and apply this knowledge in their art-making. They explain how an artwork is displayed to enhance its meaning. They evaluate how they and others are influenced by artworks from different cultures, times and places.

Students plan their art-making in response to exploration of techniques and processes used in their own and others' artworks. They demonstrate use of visual conventions, techniques and processes to communicate meaning in their artworks.



# Learning Design – bringing together the ‘what and how’ an example



MAKERS EMPIRE

LESSON PLAN

The Ancient World - Chess (Year 7 & 8)

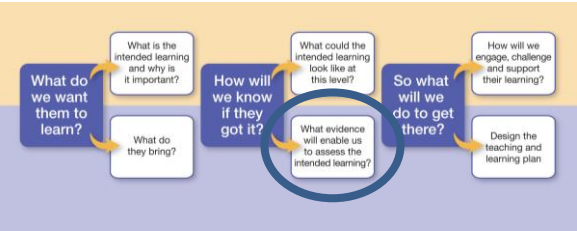


# What evidence will enable us to assess the intended learning?

## Formative Assessment

Two examples of how to use Peer Assessment to provide feedback to cause thinking and move learning forward during the learning process:

Pre-Flight Checklist – Group of 6 research on an ancient society	Yes/No
All six pieces of the chess pieces have been placed in order of importance	
The importance of each key group in the ancient society have been placed in a social hierarchy with an explanation of their position	
The artistic symbols and style of the ancient society are listed with accompanying images	





# What evidence will enable us to assess the intended learning?

## Formative Assessment

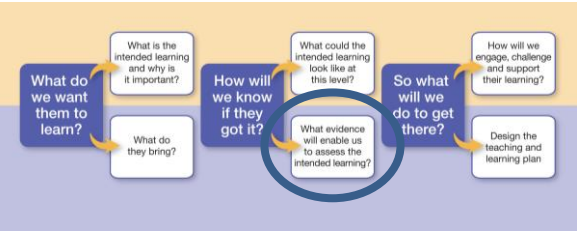
**Design a model of their chess piece in the artistic style of their Ancient civilization**

Peers provide feedback on two positives about the chess piece and something that would make it even better.

Two Stars and a Wish



The graphic shows two large, five-pointed stars with a gradient from yellow to orange, and a smaller yellow star on a wooden wand with a white star on top.





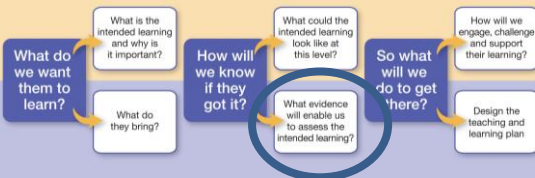
# What evidence will enable us to assess the intended learning?

## Portfolio

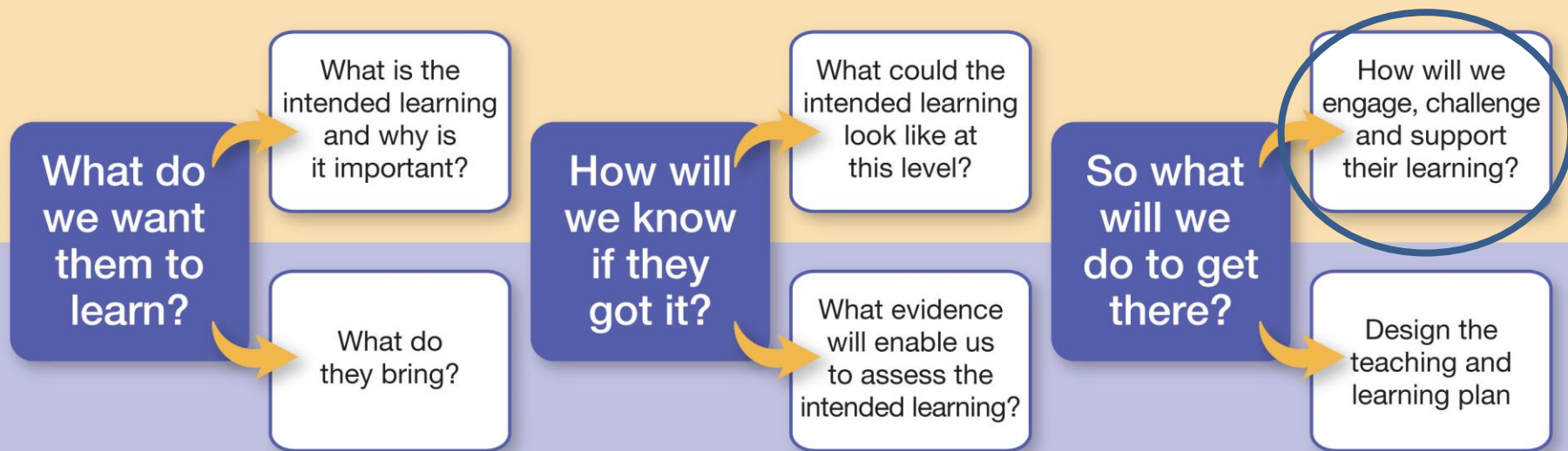
Students collect evidence along the way to include in the group portfolio for group as well as individual assessment.

### Portfolio:

- Documented research on the relative importance of the different chess pieces, the roles of key groups in an ancient society and the artistic symbols and styles of that society
- Pre-flight Checklist
- Labelled diagrams of the chess designs explaining the social role and artistic style of the design
- Two Stars and a Wish
- The accompanying 3D print of the chess pieces
- Accompanying instructions and explanations of the chess set (names and photographs of the pieces and how they can move)
- Feedback from peers after they have tested the game and any changes made as a result.



# Learning Design – bringing together the ‘what and how’ an example



MAKERS EMPIRE

LESSON PLAN

The Ancient World - Chess (Year 7 & 8)



How will we engage, challenge and support their learning?



**MAKERS  
EMPIRE**

## Explore the Makers Empire App

What can you discover?

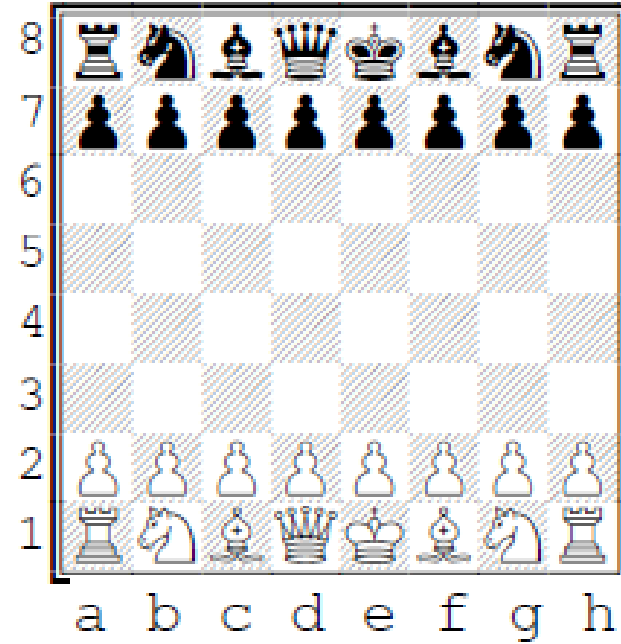
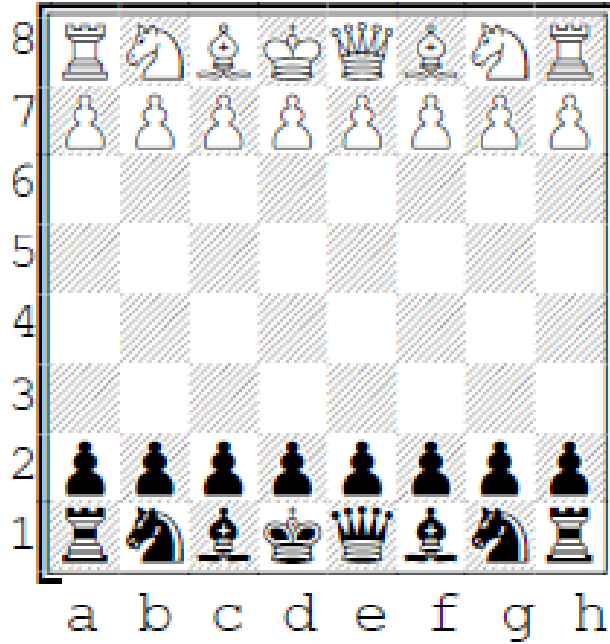
What do you think is possible?

What surprises you?

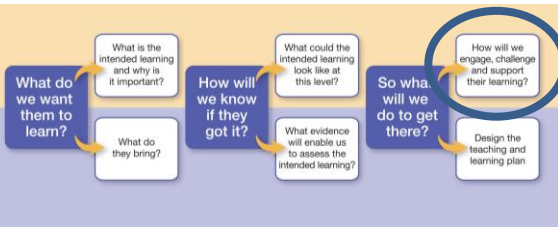
What can you create?

What is the most amazing thing you can create?

# How will we engage, challenge and support their learning?

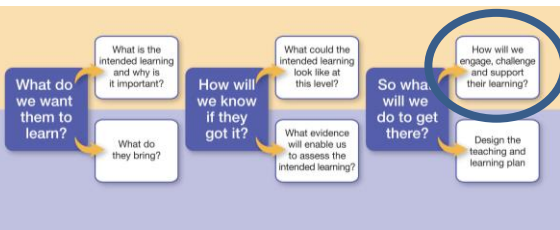


Two students set up chess boards ready to play.  
What advice would you give each student?

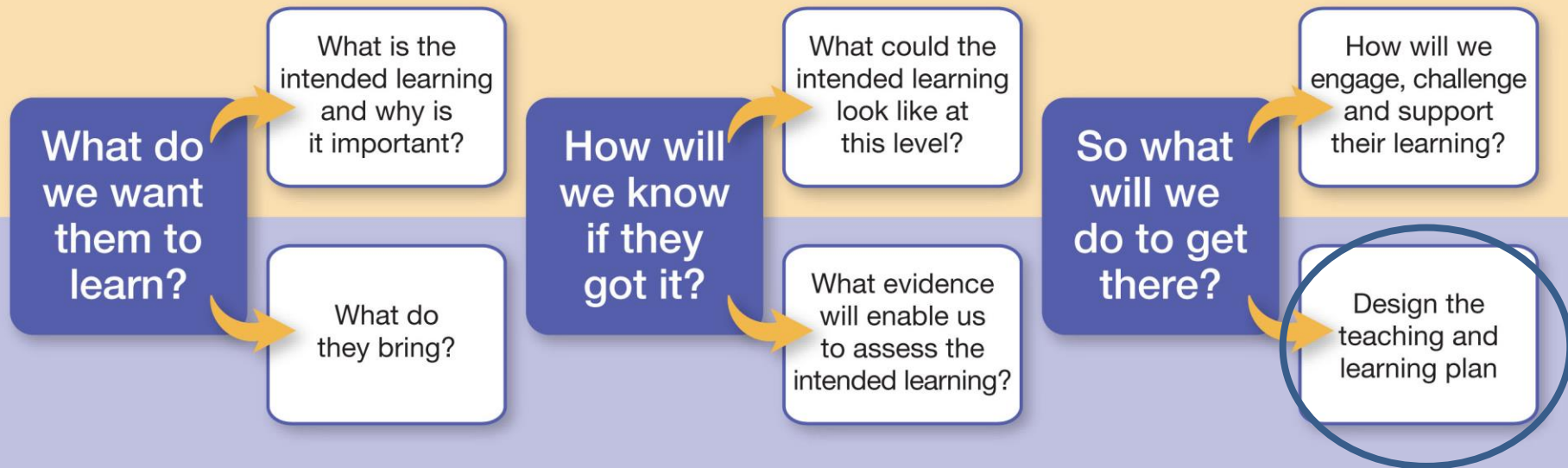


# How will we engage, challenge and support their learning?

How will we make sure that everyone in the class can play chess?  
How can we use the students who already know how to play as a resource?



# Learning Design – bringing together the ‘what and how’ an example



MAKERS EMPIRE

LESSON PLAN

The Ancient World - Chess (Year 7 & 8)



# Design the teaching and learning plan

Student Tasks	How can TfEL build on this?
<b>Lesson 1</b>	
<b>Students are introduced to the activity</b>	<p>Use strategies to find out what students already know , can do and understand in order to build on learners’ current understandings. (TfEL 4.1)            For example: A Concept Cartoon process can be used to find out what students already know and understand about the history of chess.</p>
<b>Students are organised into groups</b>	<p>Students are asked to organise their own groups and agree on roles and responsibilities within their groups to the support the development of democratic relationships. (TfEL 2.2)            For example: Groups need to nominate :            A leader to keep the group focussed on the task and ensure all members have opportunities to participate.            A recorder to keep a record of the group’s activities.            A team manager to manage time, materials and resources            A connector to prompt the group to consider how new ideas connect with previous thinking            A traveller to visit other groups or the teacher to ask questions and share ideas that can be brought back to the group            A reporter to give oral responses to the class about the group’s activities and thinking</p>
<b>Students are introduced to the game of chess and its history</b>	<p>Students are given opportunities to make connections about the game of chess to their own lives (TfEL 4.2).            For example: A student who is an avid video gamer might compare and contrast the game of chess to their favourite video game or a student who has travelled overseas might make connections to old castles they visited.</p>
<b>Students are given 30 minutes to play chess so they are familiar with the game</b>	<p>The whole class assumes responsibility for getting all class members up to speed with the game of chess to work towards building a community of learners (TfEL 2.2).            For example: Students who already know how to play chess work together to plan how they can support the rest of the class.</p>



# Design the teaching and learning plan

Student Tasks	How can TfEL build on this?
<b>Lesson 2</b>	
<b>As a class students revise chess pieces and their moves</b>	<p>Students identify what they need to revise and practice in order to develop deep understanding and skilful action (TfEL 3.2).</p> <p>For example: students are responsible for making sure they have the skills and understandings they need to be able to play chess with others successfully . They are expected to seek the support they need to achieve this.</p>
<b>Software Demonstration: Students are lead as a class through the Makers Empire Blockers and Shaper tutorials</b>	<p>Students are introduced to key information and ideas they need to start using the app and are then given time to engage with and explore the Makers Empire program themselves, using an inquiry scaffold to teach students how to learn (TfEL 3.1)</p> <p>For example: Explicit skills are modelled by the teacher and then students are given time to investigate questions such as:</p> <ul style="list-style-type: none"> <li>What can you discover?</li> <li>What do you think is possible?</li> <li>What surprises you?</li> <li>What can you create?</li> <li>What is the most amazing thing you can create?</li> </ul>
<b>Students are asked to design conventional chess pieces in 3D using the Makers Empire software so they become familiar with the capabilities of the program</b>	<p>Students show what they have learned about chess pieces while they are becoming familiar with the capabilities of the Makers Empire program so that they are communicating their learning in multiple modes (TfEL 4.4)</p> <p>For example: Students need to clarify their understanding of the features of particular chess pieces and use this to experiment with how to represent this using the Makers Empire program.</p>

# Design the teaching and learning plan

Student Tasks	How can TfEL build on this?
Lesson 3	
<p>In groups of 6 (organised as three pairs) students research:</p> <ul style="list-style-type: none"> <li>• Relative importance of the various chess pieces (Pair 1)</li> <li>• The relative importance (social hierarchy) of key groups in the ancient society being studied (pair 2)</li> <li>• Artistic symbols and styles of the ancient society being studied (pair 3)</li> </ul>	<p>Students share the responsibility for completing the group task to develop a community of learners (TfEL 2.2). For example: Students work in pairs to research a specific aspect of the task and are responsible for making sure that other members of the group are able to use and understand the information for the purpose of achieving the group goals.</p>
<p>In their group of 6, students match a key group to a chess piece based on their importance using their research. For example- Ancient Rome: King: Emperor Queen: Empress Rook: Senator Bishop: Noble Knight: Equite Pawn: Soldier (There is no one correct selection except that the choices should reflect social structure) Students then assign responsibility to design each piece to a group member (six pieces-six students)</p>	<p>Students bring the groups' research together with their shared understanding of traditional chess pieces to make connections and think creatively about how the ancient civilisation they have researched could be represented as a chess set. Rather than seeking the 'right answer' the group finds a solution that works for them and addresses the criteria as they negotiate their learning within this task (TfEL 2.3).</p>
<p>Working individually students synthesise their research (on social structure and artistic style) and create their chess piece design.</p>	<p>Students work between a number of contexts and criteria as they design their chess piece. They synthesise research about social structure and artistic styles in order to connect and apply this understanding and construct knowledge within the new context of the chess piece they are designing (TfEL 3.3) For example: In designing their chess pieces, students compare, contrast, generate and test possible solutions against two sets of information (chess pieces and roles within the ancient civilisation they have researched) in order to reach a new representation of their knowledge.</p>

# Design the teaching and learning plan

Student Tasks	How can TfEL build on this?
<p><b>Lesson 4</b></p> <p><b>Design: Students use Makers Empire Blocker and Shaper modules to design a model of their chess piece in the artistic style of the ancient civilisation being studied</b></p> <p><b>As students are making their model, visit to see what kinds of problems they are encountering and the different designs.</b></p>	<p>Challenge students to achieve high standards by providing challenging tasks with clear criteria that needs to be met in order to be successful (TfEL2.4) and then provide appropriate support for students to successfully complete the task at a high standard.</p> <p>For example: Negotiate criteria for success with students. What features will the model need to include to meet the criteria? Consider setting up a skills register where students can seek help from each other with particular aspects of the Makers Empire software.</p>
<p><b>Observe 3D printer</b></p> <p><b>Example design is sent to the printer.</b></p> <p><b>Students come up in groups for 3-5 minutes each to get a closer look at the printer in action. Other designs are printed when the time permits.</b></p>	<p>Embed the use of the 3D printer as an authentic part of the task , enabling students to demonstrate their learning using multiple modes (TfEL 3.4).</p> <p>Students share their observations of the printer in action with their group. After observing the printed example design, students may wish to make changes to their own model in response to what they observed.</p>

# Design the teaching and learning plan

Student Tasks	How can TfEL build on this?
<p data-bbox="162 334 291 365">Lesson 5</p> <p data-bbox="162 376 349 408">Finishing off:</p> <ul data-bbox="162 415 898 825" style="list-style-type: none"><li data-bbox="162 415 898 525">• Prepare a group portfolio(digital or paper) for group assessment containing the research information and design ideas</li><li data-bbox="162 529 898 596">• Ensure the individual chess piece designs are saved (for individual assessment)</li><li data-bbox="162 601 898 715">• Make a card to go with the group chess set explaining the chess piece designs (and which conventional chess piece they represent)</li><li data-bbox="162 719 898 825">• Once printed paint the pieces (black and white) and set up on the printed laminated chess board along with the explanation card.</li></ul>	<p data-bbox="952 376 1705 558">Incorporate opportunities for students to apply and evaluate their learning in authentic contexts (TfEL 4.3) by using peer assessment, individual and group assessment and opportunities for reflection and responding to feedback.</p> <p data-bbox="952 568 1705 825">For example: Have another group set up the chess board by making decisions about which pieces belong in each position (without using the explanation card). This group checks their board set-up against the original group's explanation card and provides feedback about how well the chess pieces reflect the social positions and artistic styles of the ancient civilisation.</p> <p data-bbox="952 835 1624 943">Have groups each other's chess games and provide feedback against the original criteria for success. Groups reflect on and respond to the feedback.</p>