# Critical thinking – Option 4 assessment task – the path to victory



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## Advice to teachers

Assessment should be viewed as a link between teaching and learning. For students, assessment should provide an opportunity to receive feedback and set learning goals for future improvement. For the teacher, assessment should give an insight into student learning and direct future lessons.

**This resource has an example of a formative and summative task.**

**Formative task:** in the formative task, students will explore how raw statistics from a football match, without context, can mislead conclusions regarding team performance. In the second section, students will inquire about how past performance data and new research can be used to prepare for future matches.

**Summative assessment task:** students will create and apply a criterion to determine the Greatest of All Time (GOAT) person in a selected sport. They will demonstrate critical thinking skills and their ability to support the developed criteria and choice of the athlete with clear evidence-based reasoning.

Both tasks are examples of how critical thinking can be assessed in Option 4. Modifications and adjustments are recommended to cater to your class’s learning needs. This could include adjustments to the sporting context in the formative task or how students will communicate their understanding. Tailoring the example tasks may provide an equitable opportunity for all students to demonstrate their understanding and receive quality feedback to improve learning outcomes.

**Numeracy skills:** the main numeracy skill explored in this resource is **Interpreting and representing data** from the [National Numeracy Learning progression V3](https://www.ofai.edu.au/media/iiwbecoj/national-numeracy-progression-v3.pdf) [PDF 1834KB].

This resource represents learning activities at level **IRD5** where students need to analyse and pose questions from data, communicate descriptive statistics and determine the most appropriate statistic to support their critical thinking. The resource also represents learning activities at **IRD6** where students interpret and summarise data from graphs to make comparisons. For students who need to consolidate learning at **IRD4** an introductory task may be appropriate. See the learning activities on ‘statistics in sports’ in [Critical thinking teaching resources Option 4 Strategies and innovations in sports](https://education.nsw.gov.au/teaching-and-learning/curriculum/department-approved-courses/critical-thinking#/asset4) which can be used to introduce the numeracy skills required in the assessment. This may be an entry point for some students. Accessing student data such as NAPLAN or Check-in assessments may give an indication for which starting point is suitable for each student.

Access the [Critical thinking assessment advice](https://education.nsw.gov.au/teaching-and-learning/curriculum/department-approved-courses/critical-thinking#/asset5) for further support with assessment as part of the Critical thinking course.

## Glossary

Table – vocabulary tracker

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Word/phrase | Definition | Synonyms | Antonyms | Use in a sentence |
| **accomplishments** | A skill or goal that is achieved successfully. | Achievement, attainment, ability | Weakness, failure, inability | She was proud of her academic accomplishments |
| **bias** | Prejudice. |  |  |  |
| **consecutive** | One following another, in a sequence. |  |  |  |
| **counterarguments** | To argue against, to give reasons why an argument is wrong. |  |  |  |
| **dominating** | To be the best or to be the most powerful. |  |  |  |
| **pinnacle** | At the top of a mountain or at the most successful point. |  |  |  |
| **robust** | Strong, can hold in difficult circumstances. |  |  |  |

## Formative assessment – football consultant

**Teacher note:** students predict a scoreline based only on raw match statistics. Their prediction is based only on the data from Table 2. They should support their claim with reasoning based solely on the available data. The purpose of Activity 1 is to direct student thinking towards the impact of limited information on the validity of a claim.

The match used in this task is the 2014 Football World Cup semi-final match between Brazil and Germany, which is not revealed to the students until halfway through the task. Any sporting game that resulted in an ‘upset’, with adequate available statistics and video footage, may be considered for use.

**Learning intention**

Students use available information and critical thinking to draw inferences and make predictions.

**Success criteria**

Students can:

* Examine all available data to make reasoned predictions.

### Activity 1

1. Engage with the match statistics provided in Table 2.
2. Predict the final scoreline for this match.
3. Individually or in pairs, record your answers to the questions 4 and 5.
4. What evidence and reasoning are you using to support your claim?
5. Explain and justify how confident you are in your predicted scoreline.

**Teacher note:** discussing student responses as a whole class would provide an opportunity to help students reflect and dig deeper into their thinking process.

 **Table 2 – match statistics for a football game without the final score**

|  |  |  |
| --- | --- | --- |
|  | Team A (home) | Team B (away) |
| Fouls | 11 | 14 |
| Yellow Cards | 1 | 0 |
| Red Cards | 0 | 0 |
| Offsides | 3 | 0 |
| Corner kicks | 7 | 5 |
| Saves | 3 | 7 |
| Possession | 51% | 49% |
| Shots | 18 | 14 |
| Shots on target | 13 | 12 |

**Teacher note:** after completing Activity 1, students can now be given the context of the match and the actual scoreline. The match was between Brazil and Germany in the 2014 Football World Cup semi-final. Germany (Team B) beat Brazil (Team A) 7–1, which was an infamous upset.

Highlights of the match can be shown at this stage using the following link [Brazil 1–7 Germany – Extended Highlights – 2014 FIFA World Cup](https://www.youtube.com/watch?v=aE4BdIP6bvc) (14:23).

### Activity 2

Reflect on your responses from Activity 1 to answer the following questions:

1. Did you correctly predict the score?
2. What do you have to consider when using raw summary match statistics from a football match to assess the team’s performance?
3. By conducting further analysis of the match using Table 3, give your reasons why you think Brazil lost the game in such a dramatic fashion.

The statistics in Table 3 are from the 2014 Football World Cup semi-final played between Brazil and Germany (9 July 2014, Venue: Estadio Mineirão). Germany won the match 7 goals to 1. Brazil is Team A and Germany is Team B.

****Table 3 – 2014 Football World Cup semi-final match statistics – Brazil versus Germany****

|  |  |  |
| --- | --- | --- |
|  | Brazil (Team A) | Germany (Team B) |
| Score | 1 | 7 |
| Fouls | 11 | 14 |
| Yellow Cards | 1 | 0 |
| Red Cards | 0 | 0 |
| Offsides | 3 | 0 |
| Corner kicks | 7 | 5 |
| Saves | 3 | 7 |
| Possession | 51% | 49% |
| Shots | 18 | 14 |
| Shots on target | 13 | 12 |

‘[Brazil vs. Germany - Football Match Stats - 8 July 2014’](https://www.espn.com/soccer/matchstats?gameId=383242) data sourced from ESPN.

### Extension activity

**Teacher note:** the extension task can be used for students interested in the planning and preparation that teams undertake for major tournaments. Students may choose the sport they might work on. For this task, it is best if the sport has an upcoming major tournament.

The open-ended nature of the task requires students to think deeply about what recommendation areas they will focus on. This can include decisions about coaches, player selection or tactics. Students' claims must be based on gathered evidence and supported with clear reasoning.

**Background information:** Brazil has not won the World Cup since 2002. For a nation that prides itself on dominating the world stage in football, this is considered to be a disaster by many. However, they have succeeded in the Copa América, winning in 2019 and runners-up in 2021. But the World Cup is still the pinnacle prize in football.

Table 4 is a summary of upcoming major tournaments (excluding qualifying matches).

Table 4 – upcoming major football tournaments

|  |  |  |
| --- | --- | --- |
| Tournament | Location | Year |
| Copa América | Ecuador | 2024 |
| World cup | North America (Canada, Mexico and the United States) | 2026 |

**\*Note: major football tournaments run on 4-year cycles with a tender process in place to select the hosts.**

Your research needs to address the 2 questions below:

1. What recommendations would you make for the next tournament to help Brazil have the best chance of winning the world cup for a sixth time?
2. Why should the Brazilian Football Association listen to your recommendations?

### Activity 1 – sample answers

**Teacher note:** the table below contains points students may include in their responses for Activity 1.

For Activity 1, questions 1 and 2, students’ predictions should be supported with data. Given the data set, students will probably base their reasoning on total shots on target to predict their score line. In question 3, students should critically examine the data provided and note its limitations.

Table 5 – activity 1 sample answers

|  |  |
| --- | --- |
| Item | Answers may contain |
| **From Activity 1 question 2: Predict the final scoreline for this match.** | There will be variations in the predicted score. For example, given the raw data, students may predict a draw (‘1 all’ or ‘2 all’ draw). Or a narrow win to either side A or B. |
| **From Activity 1 question 4: What evidence and reasoning are you using to support your claim?** | The possession statistics are relatively even in this game (51 % team A and 49% team B). Shots on target are also similar (13 for team A and 12 for team B). This information would suggest an even contest between both teams. Team A’s keeper made 3 saves compared to team B’s 7 saves. The fewer number of saves would suggest that out of the 12 shots on target, the keeper did not save a maximum of 9. Defenders may have blocked other shots, reducing clear goal opportunities by at least half. Football is usually low scoring, but, in this case, I think Team B would win 3–2. |
| **From Activity 1 question 5: Explain and justify how confident you are in your predicted scoreline?** | I am 50% confident in my prediction. Based on the available data, 3–2 wins would be a likely outcome. But details and the match's context are excluded, resulting in greater prediction uncertainty. |

Feedback on student responses should focus on how they have connected the claim they have made based on reasoning applied to the evidence (in this case, match statistics). The feedback, provided in the form of questions, should direct students to reflect on their responses and act on any suggestions for improvement.

### Activity 2 – sample answers

The table below contains points that students may include in their responses for Activity 2.

Table 6 – activity 2 sample answers

|  |  |
| --- | --- |
| Item | Answers may contain |
| From Activity 2 question 1: Did you correctly predict the score? | The majority of students will have an incorrect prediction. This is a simple yes or no answer. It could be asked as a simple hands-up survey. |
| From Activity 2 question 2: What do you have to consider when using raw summary match statistics from a football match to assess the team’s performance? | Raw summary data is only useful for an overview of the game or for reporting on the game in the media. Without greater resolution into critical aspects of the game, the assessment would not improve performance. For example, possession statistics can be further broken down. This could be as simple as possession in the attacking half and defensive half. In addition, a heat map representation could show where most of the game was played.When using raw summary data, it should be viewed as a quick snapshot without detail. However, it can be the first step in identifying interest areas and obtaining greater resolution. |
| ****From Activity 2 question 3: By conducting further analysis of the match, give your reasons why you think Brazil lost the game in such a dramatic fashion.**** | Reasons may include:* the availability of players and player fatigue
* pressure and the mindset of players
* player selection, formation and tactics used
* reliance on a few players rather than being a great team.
 |

### Assessing student achievement

**Teacher note:** feedback on this formative task should direct students to probe further into their analysis and how they could improve their ability to showcase their reasoning. Feedback could be in the form of questions that students reflect on and attempt to address in their rewrites. Students need to be allowed to act on the feedback so that the task can be used as a learning opportunity.

It is important to note that student responses will not be limited to the examples provided. For example, students who play or are interested in football may have an advantage in this task regarding knowledge of the game. Likewise, judgements on their critical thinking ability should not be limited to what they have identified but their reasoning and use of evidence.

Students who demonstrate a surface understanding across both sections may:

* identify that with any sport, the raw numbers (game statistics) could be misleading
* attempt to reason how the limited information prevents us from making an informed prediction
* identify that raw numbers (statistics) in sports can be misleading as a side can dominate the game but still lose.

Students who demonstrate deep thinking would build upon the previous statements and begin to question the data by prosing insightful questions, which may cover:

* the data relating to shots and shots on target, including:
* Which position on the field were these shots taken from?
* How much pressure was on the attacker?
* Was it a clear shot on goal?
* positional data, for example:
* What was the breakdown of possession on the field, and was the possession in areas determined to be dangerous for the opposition?
* How many touches were made in the opposition box and their position?

Match summary data does not give insight into an individual player's contribution to the game. Overall, a team may play well, but individual mistakes can cost the team a win. This summary data does not provide enough resolution in a game to pinpoint match-turning moments.

Player's mental and physical data is not presented. In a high-pressure game, players must be match-fit and possess the right ‘state of mind’ for the game. While this data is difficult to gather, it is vital for team selections.

## Summative sample assessment task – The Greatest Of All Time (GOAT)

**Teacher note:** in this task, students provide an answer to the question, ‘Who is the greatest sportsperson of all time?’ in a sport of their choice. Students must create a set of criteria points to judge the athlete’s accomplishments. They will need to unpack the problem in creating a fair judgement, decide on the evidence sets to be used and prepare for counterarguments against their choice.

The task has been set as a report or presentation, but this could be changed to create a video, or students could debate their choices with each other.

The primary focus of the assessment is to gain insight into how a student constructs an argument.

**Type of task:** report (600–800 words) or presentation (3–5 minutes)

**Focus question:** How can our critical thinking and reasoning skills be reflected in the way we construct and communicate opinion? How can critical thinking transfer across areas?

**Weighting:** school-based decision

**Outcomes assessed:**

* **CT5-4** undertakes research and engages in evident self-reflection throughout the critical thinking process
* **CT5-5** communicates arguments logically in a range of modes
* **CT5-6** analyses the key attributes of critical thinking in a variety of contexts or scenarios to develop ideas, solutions or further questions.

**Learning intention**

Students select and evaluate appropriate evidence to support a claim, and interpret information and data without bias, to form robust conclusions. Students communicate a strong evidence-based argument to support a claim.

**Success criteria**

Students can:

* make an informed judgement on the credibility of the evidence
* recognise any biases which can impact the ability to make an evidence-based claim
* present a logical argument based on evidence and reasoning.

### Task instructions

There are continual debates about who is the greatest athlete of all time in their chosen sport.

Your task is to create an evidence-based argument for selecting an athlete you consider the Greatest Of All Time (GOAT).

You will create a set of criteria points to judge the athlete’s accomplishments. You will need to unpack the problem in creating a fair judgement, decide on the evidence sets to be used and prepare for counterarguments against your choice.

### Task steps

1. Create a criteria for what makes someone the best sportsperson.
2. Research some sportspeople you will consider making your argument about.
3. Apply your criteria to the sportspeople and make a decision about the sportsperson you will use to build your argument.
4. Revisit your criteria using the specific information you gather about the sportsperson and decide if further criteria points can be added or removed.
5. Create a plan for explaining the reasoning you used for each of your criteria.
6. Address each criteria using your sportsperson and compare with other sportspeople in the same sport.
7. Write or record your reasoning for why your sportsperson is greater than the other sportspeople.
8. To demonstrate good critical thinking, unpack the evidence used and dig deeper. For example, look beyond summary data and analyse the statistics to construct a stronger argument.

## Invading with a new sporting franchise – sample response

The table below shows some athletes students may identify as the GOAT in their chosen sport. Other examples may be selected as appropriate.

Table 6 – examples of athletes that are considered the greatest in their sport

|  |  |  |
| --- | --- | --- |
| Sport | Athlete | Achievements |
| Basketball | Michael Jordan | * Six National Basketball Association (NBA) championships (1991–93, 1996–98).
* Olympic gold medals in 1984 in Los Angeles and 1992 in Barcelona, Spain.
* NBA’s Most Valuable Player (MVP) 5 times (1988, 1991, 1992, 1996, 1998).
 |
| Wheelchair tennis | Dylan Alcott | * Australian Open: 7-time winner.
* French Open: 3-time winner.
* Wimbledon: 2-time winner.
* US Open: 3-time winner.
* Singles gold medal at the 2016 & 2020 Summer Paralympics.
* Third professional tennis player and the only male player to win the calendar-year Golden Slam.
 |
| Tennis | Serena Williams | * Ranked world No. 1 in singles by the Women's Tennis Association (WTA) for 319 weeks, including a joint-record 186 consecutive weeks, and finished as the year-end No. 1 five times.
* Won 23 Grand Slam singles titles, the most by any player in the Open era and the second-most of all time.
* Has won the Laureus Sportswoman of the Year award 4 times (2003, 2010, 2016, 2018).
* The highest-earning female athlete of all time.
 |
| NFL | Tom Brady | * Has started 366 games (319 regular seasons, 47 playoffs) in 23 seasons, the most for an NFL quarterback.
* Holds a .768 winning percentage, the highest among NFL quarterbacks who have started 100 games.
* Seven Super Bowl titles, the most of any player and more than any NFL franchise. Overall, he appeared in a record 10 Super Bowls.
* Set the record for holding 5 Super Bowl MVP awards.
 |
| Rugby league | Cameron Smith | * Dally M Medal as the NRL's player of the year in 2006 and 2017, the Golden Boot Award as the international player of the year in 2007 and 2017, and the NRL's Dally M Hooker of the Year on 9 occasions.
* NRL's game record holder, with 430 matches played.
* NRL record for most goals kicked (1295), most tackles made (16917), most grand final points scored (44) and most wins (310).
* Won the 2012, 2017 and 2020 NRL Premierships.
* Eleven State of Origin Winners (Queensland): 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2015, 2016, 2017.
 |
| Football | Sam Kerr | * All-time leading Australian international female scorer: 59 (from 5 August 2021 to present).
* All-time leading Australian international male or female scorer: 59 (from 21 January 2022 to present).
* All-time leading Australian international female scorer at the Olympics: 7 (from 2020 Tokyo Olympics to present).
* Most goals scored in a calendar year: 11 (in both 2017 and 2019).
* First Australian football player (male or female) to score a hat-trick at a World Cup: 2019.
* Only football player to win the Golden Boot in 3 different leagues/continents: W-League (Australia): 2017–18, 2018–19; NWSL (North America): 2017, 2018, 2019; FA WSL (Europe) 2020–21,2021–22.
* First female footballer to be chosen to be on the cover of a FIFA video game: FIFA 23.
 |
| Athletics (400m) | Cathy Freeman | * Gold medal at the 1994 Commonwealth Games.
* Silver medal at the 1996 Olympic Games.
* Gold medal at the 2000 Olympic Games.
* Gold medal at the 2002 Commonwealth Games (4 × 400 metre relay).
 |

### Sample response – report from cricket on Sachin Tendulkar

Examples of arguments that demonstrate surface level thinking, would make general claims, such as:

* Sachin Tendulkar has scored the most runs and holds many individual records to establish himself as the greatest batter in cricket.
* He has been the cornerstone of Indian cricket, and the team has heavily depended on his runs for success.
* Cricketing commentators universally recognised him as the best batter to have played the game.

Critical thinkers who demonstrate deep thinking would build upon the previous statements by unpacking the evidence they use. For example, a critical thinker would look beyond summary data and analyse the statistics to construct a stronger argument. Their responses would demonstrate a clear understanding of the question requirements and showcase a clear thought process.

The example below illustrates how looking deeper into batting statistics can produce a stronger argument.

**Sample student response**

In cricket, a batter’s role is to score runs to help their team win. In considering who may be the best batter in cricket, run-scoring ability should be used to judge their skill. An analysis of the runs scored will be used as the first selection criteria to support Sachin Tendulkar’s suitability as the greatest modern batter.

Run scoring data is publicly available and can be analysed to give specific insights. This analysis will look at total runs, runs per innings and averages to support a claim. However, how the runs were scored, the players’ mindsets and the circumstances of the match have not been investigated. This would take considerable time, and the information may not be free from bias. Hence, statistical match data has been used to support this claim.

Sachin Tendulkar can be considered one of the greatest modern batters in international cricket. He has been a great run scorer in One Day Internationals (ODIs) and test matches. T20 cricket was still emerging on the international stage during his career, and Tendulkar mainly played in domestic leagues. He averages 53.78 in tests and 44.83 in ODIs. In test matches, this makes Tendulkar the 23rd overall run-scorer in the modern era of cricket. However, this is still a remarkable achievement considering he has played more games (200) than the other batters in his era. He is ranked 34th overall in averages for ODIs, but this is over more games than any other batters (463 games). Average runs scored can only provide a snapshot of a batter’s career and cannot be the only measure of their greatness. He holds the record for most runs in both these formats, 15,921 in test matches and 18,426 ODIs. With respectable averages and the records for the total number of runs scored, his claim to the mantle of the best batter is strengthened using these statistics.

A closer look into his run-scoring is needed to consider Tendulkar the greatest of all time. To be considered the best, batters should have consistent performances worldwide and against all international teams. He averages 52.67 at home (1990–2013) and 54.74 away (1989–2012). This consistency across all types of pitches strengthens his claim to be the greatest batter of all time. Batting surfaces around the world require batters to use different skills to be successful. For example, in Asia, the pitches are often slower and produce more turn. This requires the ability to bowl spinning deliveries and examine the batter's technique. Comparatively, to pitches in Australia and the West Indies which offer more bounce and pace. This requires a good eye and the ability to react quickly to the trajectory of the ball. Most batters perform better when playing on certain types of pitches and under specific playing conditions. However, Tendulkar has scored runs across all types of pitches. This achievement highlights his incredible skills as a batter, regardless of the conditions.

Against Australia, which many consider to be the best cricketing team of Tendulkar’s era, he averaged 55.00 runs per innings. Scoring 11 hundreds and 16 fifties. This accomplishment is made even more extraordinary considering the Australian team had in its bowling attack Glen McGrath and Shane Warne, 2 of the greatest bowlers of the modern game in their disciplines.

Figure 1 highlights Sachin Tendulkar’s run-scoring consistency in test matches. It is expected in cricket that batters may get low scores in some innings or go through a dry spell in terms of runs. Tendulkar has had these periods of poor performance across his career, but he has been consistently able to work his way out of them.

**Figure 1 – Sachin Tendulkar graph**



‘Sachin Tendulkar graph’ by Raven4x4x is licensed under the public domain.

While his records and accolades are numerous, one criticism could be his failure to lead India to international series victories and major tournaments. Cricket is a team sport and requires contributions from the bowling unit, batting unit and fielding unit to secure victories. For this reason, Tendulkar is still the greatest batter of the modern era. However, this assessment is not about the greatest cricketing team of all time.

A comparison across eras has not been considered. Advancements in technology, equipment, rule changes and professional leagues have all impacted how batters have performed in different periods. Would Tendulkar have performed as he did in Bradman's time? Would Bradman still be as good if he played in Tendulkar’s time? These questions are difficult to answer with certainty. For this reason, the argument should be limited to a period.

**Note:** the example above is based only on a single criterion point for selecting a GOAT in cricket. Other criteria points that could be used are shown below.

**Further points could include:**

* comparison against other batters considered the best
* marketing power
* influence on the game
* statistics against individual teams and bowlers
* honours outside the game of cricket
* domestic honours and statistics
* batting style and position.

## Options for marking

**Teacher note:** three types of criteria are available for use and teachers will need to decide which one, or combination, best serves their students. Marking guidelines may be useful for teachers to holistically mark a student’s evidence of learning while the grade descriptors may be useful in reporting progress to parents. The rubric on the aspects of the task may be useful for students to self-assess or peer assess and could be used formatively. Figure 2 shows a combined rubric which is a combination of the marking rubric and the marking guidelines. It can be used to visualise the relationship between the 2 tables. Additionally, the combined rubric illustrates the outcomes and how they relate to the indicators, which drive each progression in the rubric.

### Marking guidelines

Table 7 – marking guidelines

|  |  |
| --- | --- |
| Grade | Marking guidelines |
| A | * Develops well supported criteria for the basis of making a judgement as to which sportsperson is the GOAT.
* Determines the relevance and reliability of information and significant points of view.
* Connects multiple pieces of analysed information to form strong logical arguments for the claim.
 |
| B | * Develops criteria for the basis of making a judgement as to which sportsperson is the GOAT.
* Outlines the relevance and/or reliability of information, and significant points of view used to support the argument.
* Draws a conclusion from these multiple pieces of information and gives reasons for stating the claim.
 |
| C | * Makes a reasoned judgement about the claim by using several pieces of evidence and making connections between the evidence and a criteria they have formed.
 |
| D | * Makes a claim about who is the GOAT in a particular sport and gives a reason from one piece of research.
 |
| E | * Makes a claim about who is the GOAT in a particular sport using opinion rather than research.
 |

### Grade descriptors

Table 8 – grade descriptors

|  |  |
| --- | --- |
| Grade | Descriptors |
| A | The student has **extensive** knowledge and understanding forming criteria to construct accurate claims, with evidence and reasoning. They have displayed an extensive level of understanding when determining the relevance and reliability of the information that might be used to support an argument. In addition, the student has achieved a very high level of competence in the skills of evaluation, reflection, synthesising information and communicating arguments and can apply these skills to new situations. |
| B | The student has **thorough** knowledge and understanding forming criteria to construct claims, with evidence and reasoning. They have displayed a thorough level of understanding when determining the relevance and reliability of the information that might be used to support an argument. In addition, the student has achieved a high level of competence in the skills of evaluation, reflection and synthesising information and communicating arguments and can apply these skills to most situations. |
| C | The student has a **sound** level of knowledge and understanding of forming criteria to construct claims, with evidence and reasoning. They have displayed a sound level of understanding when determining the relevance and reliability of the information that might be used to support an argument. In addition, the student has achieved an adequate level of competence in the skills of evaluation, reflection and synthesising information. |
| D | The student has a **basic** level of knowledge and understanding of forming criteria to attempt to construct claims, with evidence and/or reasoning. In addition, the student has achieved some competence in the skills of synthesising information. |
| E | The student has an **elementary** level of knowledge and understanding of forming a criteria. They have named some points of argument without connection to reasons or evaluation. |

### Rubric

Table 9 – rubric

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Grade | Evaluating | Reflecting | Synthesising | Forming valid arguments | Structuring an argument |
| A | Determines the relevance and reliability of information used to support the argument extensively. | Evaluates relevant significant points of view. For example, consideration of counterarguments has been made. | Connects multiple pieces of information to draw a conclusion or make a claim. | Demonstrates logical reasoning by clearly supporting the claim with an analysis of the criteria they have formed. | Information is complimentary, logically connected in the structure of the piece and supports the argument. |
| B | Outlines the relevance and/or reliability of information used to support the argument. | Identifies relevant significant points of view. For example, consideration of counterarguments has been made. | Connects multiple pieces of information to draw a conclusion or make a claim. | Makes a claim, and includes reasoning and how information has been used to support a claim, against the criteria they have formed. | Information is logically connected in the structure of the piece and supports the argument. |
| C | Uses research to make arguments. | Makes reasoned judgements about findings. | Makes a connection between research and their claim. | Supports claim and their criteria with multiple pieces of evidence. | Information has paragraph structure that supports the argument being made. |
| D | Uses one piece of research. | Gives a reason for their claim as to who is the GOAT in a particular sport. | Makes a claim about who is the GOAT in a particular sport. | Supports claim with one piece of evidence. | Text (written or spoken) structure has paragraphs or breaks. |
| E | Uses opinion rather than research. | Makes a claim about who is the GOAT in a particular sport. | Makes a claim about who is the GOAT in a particular sport. | Makes an unsupported claim. | Text (written or spoken) is structured as a single block. |

### ****Combined rubric****

**Teacher note:** in the combined rubric in Figure 2, the columns show components of the outcomes in a progression from E to A (from Table 9) and the rows show how the holistic marking (from Table 7) can be described in more detail.

Figure 2 – [example of combined rubric](https://education.nsw.gov.au/content/dam/main-education/teaching-and-learning/curriculum/elective-courses/media/documents/critical-thinking-s5-option-4-assessment-task-comined-rubric.docx)



## Additional information

The information below can be used to support teachers when using this assessment package for Critical thinking.

### Rationale

Critical thinking is a form of purposeful thinking that emphasises evidence and reasoning. In today’s world, where information is readily available, critical thinking is becoming more important than remembering and recalling facts. Society values critical thinking because it is an interdisciplinary and transferable skill. It means that no matter what path or profession is pursued, critical thinking skills will always be relevant and useful.

Critical thinking skills include the ability to deconstruct, analyse, synthesise and reconstruct ideas while emphasising evidence and reasoning. Those skills are part of every toolkit for success in educational and professional arenas.

The Critical thinking course emphasises the fundamental attributes of critical thinkers and gives students a wide range of opportunities to transfer these skills across multiple disciplines. The course structure encourages students to think about thinking and transcend factual learning.

The core units introduce students to the key features of critical thinking, including how critical thinking is distinguished from other models of thinking. Students will learn about the process of argumentation and apply it to evaluate claims. Students will also gain practical research skills to collect information from various sources and evaluate their credibility.

A choice from the available options engages students in various areas of interest to reinforce the skills learnt from the core units. In addition, the options allow students and teachers to delve deeper into specific scenarios of interest. Students will be guided to ask probing questions to strengthen their critical thinking skills and challenge their perceptions of the world around them.

After completing the Critical thinking elective, students will be able to apply critical thinking processes to analyse the strength and validity of information and claims. Those skills are valuable for learning in Stage 6. Critical and creative thinking is a general capability in most Stage 6 courses. By applying their critical thinking skills, students will deepen their understanding of content and skills across many disciplines.

### Aim

The course aims to engage and encourage students to develop their critical thinking skills and recognise the key aspects of a critical thinking mind. They will develop the essential skills to evaluate the vast and diverse amount of information they encounter in their daily lives. This will help them face future challenges in a continually evolving world.

### Purpose and audience

This assessment package provides a range of assessment strategies and supplementary material that can be used to support student achievement in the task outlined. This resource is for teachers to use when creating a program of assessment for the Critical thinking course.

### When and how to use this document

Use the assessment package in the context that best supports your school context.

### Assessment for learning

Possible formative assessment strategies that could be included:

* Learning intentions and Success criteria assist educators to articulate the purpose of a learning task to make judgements about the quality of student learning. These help students focus on the task or activity taking place and what they are learning and provide a framework for reflection and feedback. [Online tools](https://app.education.nsw.gov.au/digital-learning-selector/LearningActivity/Card/622) can assist implementation of this formative assessment strategy.
* Eliciting evidence strategies allow teachers to determine the next steps in learning and assist teachers in evaluating the impact of teaching and learning activities. Strategies that may be added to a learning sequence to elicit evidence include all student response systems, [exit tickets](https://app.education.nsw.gov.au/digital-learning-selector/LearningActivity/Card/543), mini whiteboards (actual or [digital](https://app.education.nsw.gov.au/digital-learning-selector/LearningActivity/Card/575)), [hinge questions](https://app.education.nsw.gov.au/digital-learning-selector/LearningActivity/Card/560), [Kahoot](https://app.education.nsw.gov.au/digital-learning-selector/LearningTool/Card/621), [Socrative](https://app.education.nsw.gov.au/digital-learning-selector/LearningTool/Card/587), [Quizlet](https://quizlet.com/) or quick quizzes to ensure that individual student progress can be monitored and the lesson sequence adjusted based on formative data collected.
* Feedback is designed to close the gap between current and desired performance by informing teacher and student behaviour (AITSL 2017). AITSL provides a [factsheet to support evidence-based feedback](https://www.aitsl.edu.au/teach/improve-practice/feedback#:~:text=FEEDBACK-,Factsheet,-A%20quick%20guide).
* [Peer feedback](https://app.education.nsw.gov.au/digital-learning-selector/LearningActivity/Card/549) is a structured process where students evaluate the work of their peers by providing valuable feedback in relation to learning intentions and success criteria. It can be supported by [online tools](https://app.education.nsw.gov.au/digital-learning-selector/LearningActivity/Browser?cache_id=1d29b).
* Self-regulated learning opportunities assist students in taking ownership of their own learning. A variety of strategies can be employed and some examples include reflection tasks, [Think-Pair-Share](https://app.education.nsw.gov.au/digital-learning-selector/LearningActivity/Card/645), [KWLH charts](https://app.education.nsw.gov.au/digital-learning-selector/LearningActivity/Card/562), [learning portfolios](https://app.education.nsw.gov.au/digital-learning-selector/LearningActivity/Card/583) and [learning logs.](https://app.education.nsw.gov.au/digital-learning-selector/LearningActivity/Card/583)

The primary role of assessment is to establish where individuals are in their learning so that teaching can be differentiated and further learning progress can be monitored over time.

Feedback that focuses on improving tasks, processes and student self-regulation is the most effective. Students engaging with feedback can take many forms including formal, informal, formative, summative, interactive, demonstrable, visual, written, verbal and non-verbal.

[What works best 2020 update](https://education.nsw.gov.au/about-us/educational-data/cese/publications/research-reports/what-works-best-2020-update) (CESE 2020a)

### Differentiation

Differentiated learning can be enabled by differentiating the teaching approach to content, process, product and the learning environment. For more information on differentiation go to [Differentiating learning](https://education.nsw.gov.au/teaching-and-learning/professional-learning/teacher-quality-and-accreditation/strong-start-great-teachers/refining-practice/differentiating-learning) and [Differentiation](https://education.nsw.gov.au/campaigns/inclusive-practice-hub/primary-school/teaching-strategies/differentiation).

When using these resources in the classroom, it is important for teachers to consider the needs of all students in their class, including:

* **Aboriginal and Torres Strait Islander students**. targeted [strategies](https://education.nsw.gov.au/teaching-and-learning/aec/aboriginal-education-in-nsw-public-schools) can be used to achieve outcomes for Aboriginal students in K–12 and increase knowledge and understanding of Aboriginal histories and cultures. Teachers should utilise students’ Personalised Learning Pathways to support individual student needs and goals.
* **EAL/D learners.** EAL/D learners will require explicit English language support and scaffolding, informed by the [EAL/D enhanced teaching and learning cycle](https://education.nsw.gov.au/teaching-and-learning/curriculum/literacy-and-numeracy/resources-for-schools/eald/enhanced-teaching-and-learning-cycle) and the student’s phase on the [EAL/D Learning Progression](https://education.nsw.gov.au/teaching-and-learning/curriculum/multicultural-education/english-as-an-additional-language-or-dialect/planning-eald-support/english-language-proficiency). In addition, teachers can access information about [supporting EAL/D learners](https://education.nsw.gov.au/teaching-and-learning/curriculum/multicultural-education/english-as-an-additional-language-or-dialect/planning-eald-support/english-language-proficiency) and [literacy and numeracy support specific to EAL/D learners](https://education.nsw.gov.au/teaching-and-learning/curriculum/literacy-and-numeracy/resources-for-schools/eald).
* **Students with additional learning needs**. learning adjustments enable students with disability and additional learning and support needs to access syllabus outcomes and content on the same basis as their peers. Teachers can use a range of [adjustments](https://education.nsw.gov.au/teaching-and-learning/disability-learning-and-support/personalised-support-for-learning/adjustments-to-teaching-and-learning) to ensure a personalised approach to student learning. In addition, the [Universal Design for Learning planning tool](https://education.nsw.gov.au/teaching-and-learning/learning-from-home/teaching-at-home/teaching-and-learning-resources/universal-design-for-learning) can be used to support the diverse learning needs of students using inclusive teaching and learning strategies. Subject specific curriculum considerations can be found on the [Inclusive Practice hub](https://education.nsw.gov.au/campaigns/inclusive-practice-hub).
* **High potential and gifted learners.** [assessing and identifying high potential and gifted learners](https://education.nsw.gov.au/teaching-and-learning/high-potential-and-gifted-education/supporting-educators/assess-and-identify#Assessment1) will help teachers decide which students may benefit from extension and additional challenge. [Effective strategies and contributors to achievement](https://education.nsw.gov.au/teaching-and-learning/high-potential-and-gifted-education/supporting-educators/evaluate) for high potential and gifted learners help teachers to identify and target areas for growth and improvement. In addition, the [Differentiation Adjustment Tool](https://education.nsw.gov.au/teaching-and-learning/high-potential-and-gifted-education/supporting-educators/implement/differentiation-adjustment-strategies) can be used to support the specific learning needs of high potential and gifted students. The [High Potential and Gifted Education (HPGE) Professional Learning and Resource Hub](https://schoolsnsw.sharepoint.com/sites/HPGEHub/SitePages/Home.aspx) supports school leaders and teachers to effectively implement the High Potential and Gifted Education Policy in their unique contexts.

All students need to be challenged and engaged to develop their potential fully. A culture of high expectations needs to be supported by strategies that both challenge and support student learning needs, such as through appropriate curriculum differentiation (CESE 2020a:6).

### About this resource

All curriculum resources are prepared through a rigorous process. Resources are periodically reviewed as part of our ongoing evaluation plan to ensure currency, relevance and effectiveness. For additional support or advice contact the Teaching and Learning Curriculum team by emailing secondaryteachingandlearning@det.nsw.edu.au.

**Alignment to system priorities and/or needs:**

This resource aligns to the School Excellence Framework elements of curriculum (curriculum provision) and effective classroom practice (lesson planning, explicit teaching).

This resource supports teachers to address [Australian Professional Teaching Standards](https://educationstandards.nsw.edu.au/wps/portal/nesa/teacher-accreditation/meeting-requirements/the-standards/proficient-teacher) 5.1.2, 5.5.2.

This resource has been designed to support schools with successful implementation of new curriculum, specifically the NSW Department of Education approved elective course, [Critical thinking](https://education.nsw.gov.au/teaching-and-learning/curriculum/department-approved-courses/critical-thinking#/asset2) © NSW Department of Education for and on behalf of the Crown in right of the State of New South Wales, 2021.

The resource is produced to assist schools with promoting and implementing the course for the first time. As the course may be taught by teachers from a range of key learning areas, the resource is designed to support teachers from a variety of KLA expertise.

**Department approved elective course**: Critical thinking

**Course outcomes**: CT5-4, CT5-5, CT5-6

**Author**: Curriculum Secondary Learners

**Publisher**: State of NSW, Department of Education

**Resource**: teaching resource

**Related resources**: further resources to support Critical thinking can be found on the Department approved elective courses webpage including course document, sample scope and sequences, assessment materials and other learning sequences.

**Professional Learning**: join the [Teaching and Learning 7–12 statewide staffroom](https://education.nsw.gov.au/teaching-and-learning/curriculum/statewide-staffrooms) for information regarding professional learning opportunities.

**Consulted with**: Aboriginal Outcomes and Partnerships, Inclusion and Wellbeing, EAL/D, and Warrawong High School.

**Reviewed by**: this resource was reviewed by Curriculum Secondary Learners and by subject matter experts in schools to ensure accuracy of content.

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**Evidence base**:

The range of assessment strategies outlined in the advice encourages ‘a variety of assessment methods each lesson to check for students’ understanding and inform what should be taught next’ (CESE 2020b:22). The assessment strategies outlined are student-centred, providing ‘students with opportunities to reflect on their progress to inform future learning goals’ (CESE 2020b:22).

The assessment advice complies with NESA’s assessment advice, outlined on NESA’s ACE website, NESA official notices and department memorandums. They:

* include statements of school procedures for allocating grades in Year 10
* set out requirements to retain student work samples to support grade allocation as required by NESA for the RoSA (NESA 2006).

The assessment strategies outlined provide teachers with important information about whether students learned what was intended. Wiliam (2013) claims ‘the term formative should apply not to the assessment but to the function that the evidence generated by the assessment actually serves’.

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