OECD Programme for International Student Assessment

CODING GUIDE

PRINCE EDWARD ISLAND PISA WORKSHOP

Council of Ministers of Education, Canada
Conseil des ministres de l'Éducation (Canada)

Learning for Living

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GENERAL INTRODUCTION

The PISA instrument comprises several different types of items including multiple-choice items, short constructed response items and items which require more extended responses.

Responses to multiple-choice items and some short constructed response items will be directly entered into the data-entry software.

Responses to most short-response and to all extended-response items need to be coded by expert coders. This Coding Guide contains directions for coding all such items.

In a second stage, the codes determined by the coders, together with codes for the rest of the items, will be entered into the data entry software and converted electronically into scores for each student.

LAYOUT OF THE CODING GUIDE

In general, each item in this Coding Guide begins at the top of a page. The **question heading**, which includes the name of the unit, appears top left, with the **item identifier** and the available **codes** at top right. This line is followed by the question **stem** as it appears in the Student Booklet, and then the **question intent**, which gives a general description of what the question is intended to assess. A description of how to code the item follows. The **coding** for each item in the guide consists of:

- **credit labels**. The section describing the highest score for each item is headed with the label "full credit". The section describing unacceptable responses and omissions (Code 0 and Code 9) is headed with the label "no credit". Those items for which there are intermediate codes include a section headed "partial credit".

- the **numerical code** (e.g. Code 1) for each category of response;

- a general **description** of the type of response for each code; and

- **examples** of responses for each coding category, listed as dot-points below the description, and often followed by an explanation in italics. The dot-pointed examples are offered as some possible answers; they are not a complete list of possible answers.

GENERAL PRINCIPLES FOR CODING

Spelling and grammar

Spelling and grammar mistakes should be ignored unless they seriously obscure meaning. This is not a test of written expression.

Exercising judgement

Although the coding descriptions and examples are intended to minimize subjectivity, coders will inevitably have to exercise some judgement in determining the boundaries between codes and the limitations of what constitutes a particular code. As a general principle, judgement should be based on the coder's best assessment of whether the student is able to answer the question. Coders should avoid applying a deficit model, that is, deducting points for anything that falls short of a perfect answer.

Note that the terms "full credit", "partial credit" and "no credit" are used instead of "correct" and "incorrect" responses. There are two main reasons for adopting these terms. First, some questions do not have "correct" answers. Rather, responses are graded based on the

degree to which students demonstrate an understanding of the text or topic in question. Secondly, "full credit" responses do not necessarily include only fully correct, or perfect, responses. In general, "full credit", "partial credit" and "no credit" sections divide the students' responses into three groups in terms of the extent to which the student demonstrates ability to answer the question.

When to consult the supervisor

If a coder is unable to determine which code a response should receive, or if the student response clearly demonstrates understanding of the text and the question but does not fit into any given score category, the coder should consult the coding supervisor who will either make the judgement, or, if unable to do so, pass the question on to the National Project Manager (or the person in charge of coding). Cases which cannot be resolved at the National Centre must be referred to the Consortium through the email coder query service.

SOME COMMON PROBLEMS

Response is given in a format other than the one asked for

In these cases the coder should consider whether the student has understood the substance of the question and met the purpose of the question in the response. Some examples of such responses and how to deal with them are outlined below.

NUMBERED LINES ARE PROVIDED FOR SEPARATE PARTS OF A RESPONSE, BUT THE STUDENT WRITES MORE THAN ONE (CORRECT) ELEMENT ON ONE LINE.

In this case, the coder should ignore the arrangement of the information. Each element of the response should be considered separately, regardless of how it is positioned on the lines.

THE QUESTION CALLS FOR A WRITTEN RESPONSE, BUT THE STUDENT RESPONDS BY CIRCLING OR UNDERLINING PART OF THE TEXT.

The response should be coded according to how well the indicated section satisfies the response called for. For example, if the item asks the student to "list three things in the text", and the student draws arrows from the stem to the appropriate part of the text or underlines or circles the three things in the text, the answer should be given full credit. On the other hand, if the answer asks for a response "in your own words", underlining in the text should be given no credit.

THE QUESTION CALLS FOR UNDERLINING PART OF THE TEXT, BUT THE STUDENT GIVES A WRITTEN RESPONSE.

The response should be coded according to how well it matches the substance of the section which should have been underlined.

Response contains elements of two or more different codes

First, consider whether the elements in the response contradict one another or not.

CONTRADICTORY ELEMENTS

If the elements of the responses are contradictory, choose Code 0. For example, if a numerical answer is required, a response which provides two different numbers is considered self-contradictory and should therefore be coded 0.

NON-CONTRADICTORY ELEMENTS

If the elements of the response do not contradict one another, consider whether the elements are drawn from a restricted or a wide pool of possibilities.

Restricted pool of possible responses

In some cases a very limited pool of possible answers is available, for example when students are asked to choose one of only four or five factors mentioned in the passage. Here, a response containing two or more elements, one of which is incorrect or irrelevant, should be coded 0. (This is considered equivalent to checking more than one alternative in a multiple-choice item.)

Wide or unrestricted pool of possible responses

In some cases an extensive range of possible answers is available either within the text or outside it. Here, codes should be assigned to give the student credit for the acceptable part of the response unless the incorrect element of the response conflicts with the text.

Superfluous underlined text

Where underlining is called for, if more than the required section is underlined apply the following rules:

- If a section of the text is underlined which does not relate to the item or to another item on the same text, choose Code 0.

- If a section of the text is underlined which does not relate to the item but DOES relate to another item on the same text, choose Code 1.

"NO CREDIT" CODES

Code 0

This code is used for responses where there is any evidence that the student has made an unsuccessful attempt to answer the question. Use as specified for each item. Some common specifications are "insufficient or vague", "inaccurate comprehension", and "implausible or irrelevant".

Code 0 should also be used for the following:

- An answer such as "I don't know", "this question is too hard", a question mark or a dash (—);

- An answer which has been written and then erased or crossed out, whether it is legible or not; and

- An answer which is clearly not a serious attempt. Examples of this kind of response include jokes, swearing, names of pop stars and negative comments about the test.

Code 9

This code is labelled "Missing" in the body of the Coding Guide. It is used for those cases where a student has apparently not attempted a question. A blank space or words indicating no attempt (*e.g.* "Ran out of time") should receive a Code 9.


NOT APPLICABLE CODE

This code is used if a question was misprinted so that it was not possible for the student to answer it. For example, there may be a photocopy or printing error so that the question is not legible. In this case, please write "n" as the Not Applicable Code next to the item. We expect that the Not Applicable Code will only be used on rare occasions, if at all.

FEEL GOOD IN YOUR RUNNERS
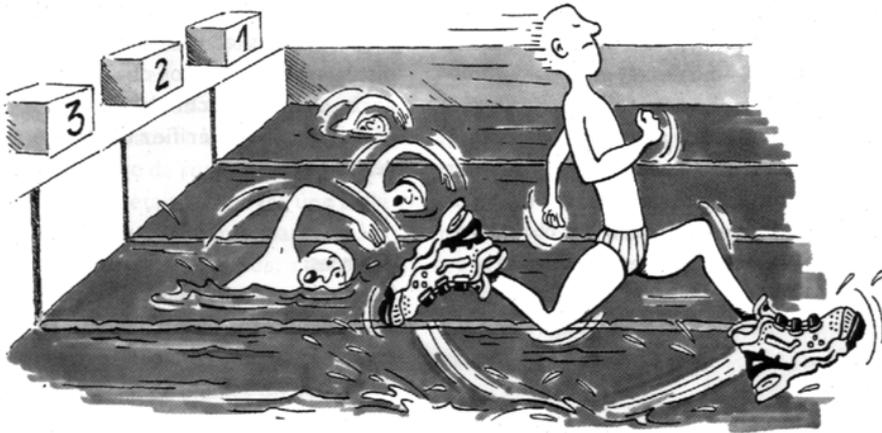
For 14 years the Sports Medicine Centre of Lyon (France) has been studying the injuries of young sports players and sports professionals. The study has established that the best course is prevention … and good shoes.

Knocks, falls, wear and tear...

Eighteen per cent of sports players aged 8 to 12 already have heel injuries. The cartilage of a footballer's ankle does not respond well to shocks, and 25% of professionals have discovered for themselves that it is an especially weak point. The cartilage of the delicate knee joint can also be irreparably damaged and if care is not taken right from childhood (10–12 years of age), this can cause premature osteoarthritis. The hip does not escape damage either and, particularly when tired, players run the risk of fractures as a result of falls or collisions.

According to the study, footballers who have been playing for more than ten years have bony outgrowths either on the tibia or on the heel. This is what is known as ""footballer's foot", a deformity caused by shoes with soles and ankle parts that are too flexible.

Protect, support, stabilize, absorb

If a shoe is too rigid, it restricts movement. If it is too flexible, it increases the risk of injuries and sprains. A good sports shoe should meet four criteria:

Firstly, it must *provide exterior protection*: resisting knocks from the ball or another player, coping with unevenness in the ground, and keeping the foot warm and dry even when it is freezing cold and raining.

It must *support the foot*, and in particular the ankle joint, to avoid sprains, swelling and other problems, which may even affect the knee.

It must also provide players with good *stability* so that they do not slip on a wet playing field or skid on a surface that is too dry.

Finally, it must *absorb shocks*, especially those suffered by volleyball and basketball players who are constantly jumping.

Dry feet

To avoid minor but painful conditions such as blisters or even splits or athlete's foot (fungal infections), the shoe must allow evaporation of perspiration and must prevent outside dampness from getting in. The ideal material for this is leather, which can be water-proofed to prevent the shoe from getting soaked the first time it rains.

Use the article on the opposite page to answer the questions below.

Question 1: RUNNERS

What does the author intend to show in this text?

A   That the quality of many sports shoes has greatly improved.
B   That it is best not to play football if you are under 12 years of age.
C   That young people are suffering more and more injuries due to their poor physical condition.
D   That it is very important for young sports players to wear good sports shoes.

RUNNERS SCORING 1

QUESTION INTENT: Forming a Broad Understanding

Full credit

Code 1:   That it is very important for young sports players to wear good sports shoes.

No credit

Code 0:   Other responses.

Code 9:   Missing.

Question 2: RUNNERS

According to the article, why should sports shoes not be too rigid?

....

RUNNERS SCORING 2

QUESTION INTENT: Retrieving Information: selecting explicitly stated information

Full credit

Code 1:   Refers to <u>restriction of movement</u>.
  • They restrict movement.
  • They prevent you from running easily.

No credit

Code 0:   Shows <u>inaccurate comprehension</u> of the material or gives an <u>implausible or irrelevant</u> answer.
  • To avoid injuries.
  • They can't support the foot.
  • Because you need to support the foot and ankle.

OR: Gives insufficient or vague answer.
- Otherwise they are not suitable.

Code 9:   Missing.

Question 3: RUNNERS

R110Q05-0 1 9

One part of the article says, "A good sports shoe should meet four criteria."

What are these criteria?

....

....

....

....

RUNNERS SCORING 3

QUESTION INTENT: Retrieving Information

Full credit

Code 1:   Refers to the four criteria in italics in the text. Each reference may be a direct
          quotation, a paraphrase or an elaboration of the criterion. Criteria may be given
          in any order. The four criteria are:
          (1) To provide exterior protection
          (2) To support the foot
          (3) To provide good stability
          (4) To absorb shocks

- 1 Exterior protection
  2 Support of the foot
  3 Good stability
  4 Shock absorption
- It must provide exterior protection, support the foot, provide the player with good stability
  and must absorb shocks.
- Protect, support, stabilize, absorb. [*Quotes sub-heading of this section of text.*]

No credit

Code 0:   Other responses.
- 1. Protect against knocks from the ball or feet.
  2. Cope with unevenness in the ground.
  3. Keep the foot warm and dry.
  4. Support the foot.
      [*First three points in this response are all part of criterion 1 (provide exterior
      protection).*]
Code 9:   Missing.

Look at this sentence from near the end of the article. It is presented here in two parts:

(first part)

"To avoid minor but painful conditions such as blisters or even splits or athlete's foot (fungal infections),…"

"…the shoe must allow evaporation of perspiration and must prevent outside dampness from getting in." *(second part)*

What is the relationship between the first and second parts of the sentence?

The second part

A   contradicts the first part.
B   repeats the first part.
C   illustrates the problem described in the first part.
D   gives the solution to the problem described in the first part.

RUNNERS SCORING 4

QUESTION INTENT: Developing an Interpretation: recognizing the relationship
                              between two sentences, without explicit markings (connectors)

Full credit

Code 1: gives the solution to the problem described in the first part.

No credit

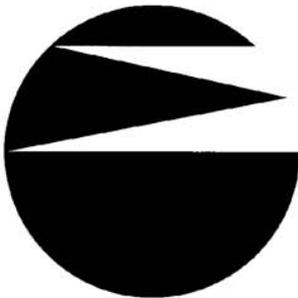Code 0: Other responses.

Code 9: Missing.

R091: MORELAND

The Moreland Library System gives new library members a bookmark showing its Hours of Opening. Refer to the bookmark to answer the questions which follow.

HOURS OF OPENING — *Effective from February 1 1998*

Moreland Library System

	Brunswick Library	Campbell Turnbull Library	Coburg Library	Fawkner Library	Glenroy Library
Sunday	1pm-5pm	Closed	2pm-5pm	Closed	2pm-5pm
Monday	11am-8pm	11am-5.30pm	1pm-8pm	11am-5.30pm	10am-5.30pm
Tuesday	11am-8pm	11am-8pm	11am-8pm	11am-8pm	10am-8pm
Wednesday	11am-8pm	11am-5pm	10am-8pm	11am-5pm	10am-8pm
Thursday	11am-8pm	11am-5.30pm	10am-8pm	11am-5.30pm	10am-8pm
Friday	11am-5pm	11am-5pm	10am-8pm	11am-5pm	10am-5.30pm
Saturday	10am-1pm	10am-1pm	9am-1pm	10am-1pm	9am-1pm

Question 5: MORELAND

What time does the Fawkner Library close on Wednesday?

....

MORELAND SCORING 5

QUESTION INTENT: Retrieving Information

Code 1:   5 p.m. / 5 o'clock

Code 0:   Other responses.

Code 8:   Off task.

Code 9:   Missing.

Question 6: MORELAND

Which library is still open at 6 p.m. on Friday evening?

A   Brunswick Library
B   Campbell Turnbull Library
C   Coburg Library
D   Fawkner Library
E   Glenroy Library

MORELAND SCORING 6

QUESTION INTENT: Retrieving Information

Full credit

Code 1:   Coburg Library

No credit

Code 0:   Other responses.

Code 9:   Missing.

Warranty Text 1

Camera Shots

Video House

89 Elizabeth Street
Victoria, British Columbia B1B 2A3
PHONE: 555-1313 FAX: 555-1313
http://www.camerashots.com.

CUSTOMER
SARAH BROWN
151 GLENLYON STREET
VICTORIA, BC B1B 2A4

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CAMERA SHOTS VIDEO HOUSE
89 ELIZABETH STREET
Victoria, British Columbia B1B 2A3
555-1313
```

INVOICE	26802	DATE	18/10/99	TIME	12:10
ACCOUNT	195927	SALES	24 RAY	REG.	16

PROD	DESCRIPTION	SERIAL No	LIST	QT	NET	TOTAL	EX
150214	ROLLY FOTONEX 250 ZOOM	30910963		1	249.08	249.08	X
33844	TRIPOD			1	5.66	5.66	X

Transaction . . . . Amount . . . Change

Visa/Bank Card $254.74

Sub-Total	254.74
Total	254.74

Thank you for your business

On the opposite page is the receipt that Sarah received when she bought her new camera. Below is the warranty card for the camera. Use the information from the receipt to answer the questions which follow.

Warranty Text 2

ONE YEAR WARRANTY: (Private Users)
VALID ONLY IN CANADA
VIDEO HOUSE & COMPANY PTY LTD – ACN 008 458 884 ('VIDEO HOUSE') warrants to the initial owner that the camera is free of any defects in material or workmanship. This warranty is not transferable.
Video House will service, repair or replace at its election, and free of charge, any part which is found upon inspection by Video House to be defective in material or workmanship during the warranty period(s).

PLEASE PRINT CLEARLY

NO. M 409668

Camera – Model ....

....

Serial No:...

Name of Owner *SARAH BROWN* ....

Address:............*151 GLENLYON ROAD* ....

.........................*VICTORIA, BRITISH* ....

.........................*COLUMBIA B1B 2A4* ....

Date Purchased: ....

Purchase Price: ....

Rubber Stamp of Dealer

PLEASE NOTE:
Post Immediately – Postage Stamp Necessary
This warranty card should be completed and returned to Video House within 10 days of purchase.

International Warranty Card issued on request.

Question 7: WARRANTY

Use the details on the receipt to complete the warranty card. The name

and address of the owner have already been filled in.

WARRANTY SCORING 7A

No credit

Code 9:   Missing. Use this code only if there is no attempt on any part of the
              Warranty form. Write "9" once next to item code

WARRANTY SCORING 1A (MODEL)

QUESTION INTENT: Retrieving Information: using information from another source to fill
                          out a form

Full credit

Code 1:   Correctly identifies model.
- Rolly Fotonex 250 zoom.
- Rolly Fotonex.
- Fotonex.

No credit

Code 0:   Other responses.
- 150214. [*Product number rather than camera name and model.*]
- Rolly fotonex 250 Zoom Tripod. [*Includes redundant and potentially confusing information. Shows poor understanding of the organization and substance of the receipt.*]

Code 8:   Off task.

WARRANTY SCORING 7B (SERIAL NUMBER)

QUESTION INTENT: Retrieving Information: using information from another source to fill
                          out a form

Full credit

Code 1:   30910963

No credit

Code 0:   Other responses.

Code 8:   Off task.

WARRANTY SCORING 7C (DATE OF PURCHASE)

QUESTION INTENT: Retrieving Information: using information from another source to fill out a form

Full credit

Code 1:   18/10/99 Date may be given in another form, but must include date, month and year.
- 18 October 1999

May give redundant related information (time).
- 18/10/99, 12:10 pm

No credit

Code 0:   Other responses.
- 18.10.97. *[Inaccurate year notation (wrong year).]*

Code 8:   Off task.

WARRANTY SCORING 7D (PURCHASE PRICE)

QUESTION INTENT: Retrieving Information: using information from another source to fill out a form

Full credit

Code 1:   ($) 249.08

No credit

Code 0:   Other responses.
- ($) 254.74

Code 8:   Off task.

Question 8: WARRANTY

How long does Sarah have, to return the warranty card?

....

WARRANTY SCORING 8

QUESTION INTENT: Retrieving Information: literal match

Full credit

Code 1:   Indicates 10 days.
- Ten days.
- Within 10 days of purchase.

Question 9: WARRANTY

What else did Sarah buy while she was in the store?

....

WARRANTY SCORING 9

QUESTION INTENT: Retrieving Information

Full credit

Code 1: A tripod.

No credit

Code 0: Other responses.

Code 8: Off task.

Code 9: Missing.

Question 10: WARRANTY

The words "Thank you for your business" are printed on the bottom of the receipt. One possible reason for this is simply to be polite. What is another possible reason?

....

WARRANTY SCORING 10

QUESTION INTENT: Reflecting on the Form of a Text

Full credit

Code 1: Refers either explicitly or implicitly to development of the <u>business–customer relationship</u>.
- It's good for business to be nice to you.
- To create a good relationship with the customer.
- They want you to come back.

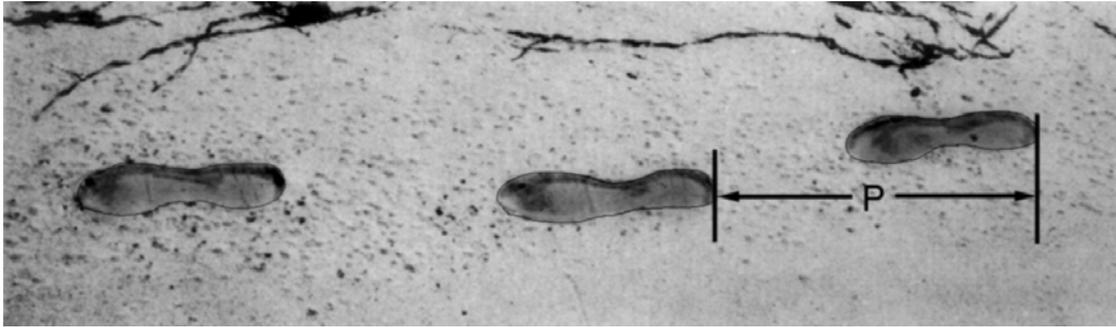***No credit***

Code 0:   Other responses.
- They're being polite.
- They're glad you bought the camera from them.
- They want you to feel special.
- To let the customers know they are appreciated.

Code 8:   Off task.

Code 9:   Missing.

WALKING

The picture shows the footprints of a man walking. The pacelength P is the distance between the rear of two consecutive footprints.

For men, the formula, $\dfrac{n}{P} = 140$, gives an approximate relationship between n and P

where,

n = number of steps per minute, and

P = pacelength in metres

Bernard knows his pacelength is 0.80 metres. The formula applies to Bernard's walking.

Calculate Bernard's walking speed in metres per minute and in kilometres per hour. Show your work.

WALKING SCORING 11

Full credit

Code 31: Correct answers (unit not required) for both metres/minute and km/hour:
• n = 140 x .80 = 112.
• Per minute he walks 112 x .80 metres = 89.6 metres.
• His speed is 89.6 metres per minute.
• So his speed is 5.38 or 5.4 km/hr.
Code 31 as long as both correct answers are given (89.6 and 5.4), whether working out is shown or not. Note that errors due to rounding are acceptable. For example, 90 metres per minute and 5.3 km/hr (89 X 60) are acceptable.
• 89.6, 5.4.
• 90, 5.376 km/h.
• 89.8, 5376 m/hour [note that if the second answer is given without units, it should be coded as 22].

Partial credit (2-point)

Code 21: As for code 31 but fails to multiply by 0.80 to convert from steps per minute to metres per minute. For example, his speed is 112 metres per minute and 6.72 km/hr.
• 112, 6.72 km/h.

Code 22: The speed in metres per minute correct (89.6 metres per minute) but conversion to kilometres per hour incorrect or missing.
• 89.6 metres/minute, 8960 km/hr.
• 89.6, 5376.
• 89.6, 53.76.
• 89.6, 0.087 km/h.
• 89.6, 1.49 km/h.

Code 23: Correct method (explicitly shown) with minor calculation error(s) not covered by Code 21 and Code 22. No answers correct.
• n=140 x .8 = 1120; 1120 x 0.8 = 896. He walks 896 m/min, 53.76km/h.
• n=140 x .8 = 116; 116 x 0.8 =92.8. 92.8 m/min -> 5.57km/h.
Code 24: Only 5.4 km/hr is given, but not 89.6 metres/minute (intermediate calculations not shown).
• 5.4.
• 5.376 km/h.
• 5376 m/h.

Partial credit (1-point)

Code 11: *n* = 140 x .80 = 112. No further working out is shown or incorrect working out from this point.
• 112.
• n=112, 0.112 km/h.
• n=112, 1120 km/h.
• 112 m/min, 504 km/h.

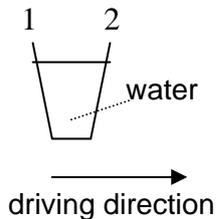### *No credit*

Code 00: Other responses.

Code 99: Missing.

BUSES

A bus is driving along a straight stretch of road. The bus driver, named Ray, has a cup of water resting on the dashboard:

driving direction

Suddenly Ray has to slam on the brakes.

What is most likely to happen to the water in the cup?

A   The water will stay horizontal.
B   The water will spill over side 1.
C   The water will spill over side 2.
D   The water will spill but you cannot tell if it will spill at side 1 or side 2.

BUSES SCORING 12

QUESTION INTENT: Process: Demonstrating knowledge and understanding
Theme: Forces and movement
Area: Science in technologies

Full credit

Code 1: C. The water will spill over side 2.

No credit

Code 0: Other responses.

Code 9: Missing.