Neurological Examination Techniques of Speech in Bahasa Malaysia for Adults: Simple Approach Practiced in Hospital Universiti Sains Malaysia

Abdul Haleem Noorsham1,4, Mohamad Muaimin Abdullah1,5, Saniah Abdul Halim2,3,6, Abdul Rahman Izaini Ghani1,2,3, Zamzuri Idris1,2,3, Jafri Malin Abdullah1,2,3

1 Department of Neurosciences, School of Medical Sciences, Universiti Sains Malaysia, Kelantan, Malaysia
2 Department of Neurosciences, Hospital Universiti Sains Malaysia, Universiti Sains Malaysia, Kelantan, Malaysia
3 Brain and Behaviour Cluster, School of Medical Sciences, Universiti Sains Malaysia, Kelantan, Malaysia
4 Department of Neurosurgery, Hospital Sultanah Nur Zahirah, Terengganu, Malaysia
5 Department of Neurosurgery, Hospital Sultanah Bahiyah, Kedah, Malaysia
6 Neurology Unit, Department of Internal Medicine, School of Medical Sciences, Universiti Sains Malaysia, Kelantan, Malaysia

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Abstract

There are four classification levels for speech disorders namely dysphonia, dysarthria, dysprosody and dysphasia. In general, speech examination mainly focuses on three main components that are spontaneous speech, auditory comprehension, and oral motor examination. Quick bedside assessment on speech in Bahasa Malaysia is essential to assist the speech language therapist (SLT) and other physicians to determine the disorders. Speech therapy is also essential in monitoring and continuous assessment for patients with speech and language disorders such as dysphasia and dysarthria. Speech clinicians in Hospital Universiti Sains Malaysia (HUSM) have been adapting two most widely used batteries of speech assessment tools namely Western aphasia battery-revised (WAB-R) by Andrew Kertesz and Boston diagnostic aphasia examination (BDAE). These tools have been modified into simple and validated speech assessments in Bahasa Malaysia. This video manuscript will demonstrate the use of both tools in performing bedside speech assessment for patients with speech disorders. The Bahasa Malaysia speech examination should not be difficult when WAB-R and BDAE speech assessment tools are applied. The aim of this simple approach using the adapted version of BDAE and WAB-R is to assist the clinician to achieve quick and accurate diagnosis with a validated scoring system.

Keywords: speech disorders, speech examination, dysphasia, dysarthria, Broca’s dysphasia, Wernicke’s dysphasia, Boston diagnostic aphasia examination, Western aphasia battery-revised, Bahasa Malaysia
Special Communications | Neurological examination of speech in Bahasa Malaysia

Introduction

There are 32.7 million people in Malaysia with diverse cultures and sharing different beliefs, customs, values, religions and languages (estimated: 69.1% Malay, 23.0% Chinese, 6.9% Indians and 1% others) (1). A state in East Malaysia, Kelantan, consists of approximately 1.8 million Malay ethnicities (1) who speaks Malay dialect (2). The official language of Malaysia is the Malay language (Bahasa Melayu or Bahasa Malaysia) whereas English serves as the second language. A communicative speech consists of words arranged according to the rules of grammar and syntax and invested with prosody.

Speech disorders can be classified into four levels according to the site of lesions. Lesion at the lowest level is known as dysphonia due to the disturbance in the production of sounds in the larynx. Dysarthria is defined as a disorder in articulating speech sounds, which is due to the second lowest lesion. The next level of lesion is dysprosodies consisting of scanning speech (cerebellar), plateau speech (basal motor nuclei/Parkinsonian), and stuttering, cluttering and absence of emotional inflections (cerebral). The highest level of lesion is known as dysphasia that is defined as the disturbance in the understanding or expression of words as symbols for communication (3). The two most common types of dysphasia are expressive and receptive dysphasia. Expressive dysphasia or known as Broca’s aphasia is the non-fluent type of aphasia whereby the patient speaks telegraphically, sparingly, and slowly. Furthermore, receptive aphasia is known as Wernicke aphasia or fluent aphasia whereby a lesion happened in the Wernicke area of the brain that is responsible for comprehension of spoken words or written words (3).

Malaysia is known as multi-lingual country hence, speech examination among Malaysians is a huge challenge. The speech language therapist (SLT) in Hospital Universiti Sains Malaysia (HUSM) has been using two modified diagnostic aphasia batteries known as the Boston diagnostic aphasia examination (BDAE) (Appendix 1) (4) and Western aphasia battery-revised (WAB-R) by Andrew Kertesz (Appendix 2) (5). These tools have been used to perform a neurological examination of speech in HUSM among the Malay language speakers in Kelantan. BDAE and WAB-R are the best batteries to achieve an accurate diagnosis of speech disorders in adults. These batteries have been carefully adapted and translated into Bahasa Malaysia for the ease of communication and quick bedside assessment.

The goals for the examination are to determine the types of speech disorders, particularly expressive or receptive dysphasia, dysarthria, disorders in reading and writing or other oral motor disorders. The adapted assessment tools in general focus on three main components of speech examinations namely spontaneous speech, auditory comprehension and oral motor examinations. Reading and writing are included under the linguistic component, which is an extension from the three main core areas. The examinations scores are recorded at the end of the assessment and repeated within a certain period of time. Any improvement or deterioration from the first assessment can be monitored by per cases basis.

Methods

In general, the goal of speech examination in Bahasa Malaysia is to classify speech disorders into the types of aphasia namely expressive or receptive, dysarthria or other oral motor discrepancies. This can be achieved by focusing on the three main components of speech assessment including spontaneous speech, auditory comprehension and oral motor examination that includes repetition and naming (3). The fourth component, which is linguistic that includes extensive reading and writing examination, is tested thoroughly in a clinical setting (3). For practical purposes, the video of speech examination in Bahasa Malaysia can be viewed together with this article.

The speech examination performed at the bedside or at the clinic is performed using the adapted version of BDAE and WAB-R. Both batteries have been translated into Bahasa Malaysia in order for the SLT in HUSM to perform a better assessment. These two batteries are being used worldwide, adapted to various languages and not limited for diagnostic purposes, but also evaluation of language functionality and treatment designed for patients with aphasia (6, 7). Many groups have used these batteries that have been translated into Bahasa Malaysia in language assessments and treatment designs (8, 9, 10, 11, 12, 13,14).
Speech Assessment Typical Components

Case History

Case history consists of a collection of information about speech difficulties particularly in the areas of language processes. These include difficulty in talking, hearing, vision, swallowing and other important medical conditions that may be related to the speech complaints. The medication history is also important especially the side effects of certain medications. Other histories include family, education level and patient’s language proficiency in all language modalities. Patient’s communication needs, as well as the family’s expectation for therapy, is vital during case history session.

Spontaneous Speech Examination

The aims of spontaneous speech examination at the bedside are essential to evaluate the number of words spoken, the content and the associations of the sentences produced by the patient. These are essential for the physicians to determine the adequacy of response from the patient. Furthermore, another common method to initiate a response from the patient during spontaneous speech session is to ask the patient to tell a story or describing a picture to the examiner. This will aid the examiner to evaluate the types of conversation produced by the patient. The response was scored according to the contents of the conversation as seen in (Appendix 1) and (Appendix 2).

This first assessment plays important role in determining the fluency of patient’s speech to direct the assessment pathway in further evaluating the speech disorders at the end of the assessment. Patient that is non-fluent in speech but has an appropriate content will be directed to the auditory speech comprehension in view that the patient may have a lesion at the Broca’s region (speech production).

Auditory Comprehension

Comprehension test consists of word comprehension, commands and complex ideational material. The sentences are verbalised by the examiner and the patient has to pinpoint to one of four visual stimuli indicating the correct sentence. The patient also has to perform a spoken command in which the patient has to answer the questions correctly. Finally, a short story will be read to the patient and the patient needs to answer questions related to the story (Appendix 1) (Appendix 2). The aim of this test is to capture either the patient has impaired comprehension in understanding grammar and syntax, words in relation to other words or difficulty with semantics and understanding individual words.

Oral Expression

Oral expression assesses two major areas, which are repetition and naming. These two components are important to distinguish the patient either anomic or conductive aphasia whereby the lesion is at dominant parietal or arcuate fasciculus, respectively. The patient needs to recite sentences under automatised sequences, repeat single, sentences, naming objects and basic symbols as shown by the examiner (Appendix 1) (Appendix 2). The aim of oral motor expression is to determine any deficit in articulation that is responsive to certain muscles involved in producing speech.

Reading

Reading test is performed to test the patient’s ability to comprehend written language symbols by reading. Written language is perceived by the visual system and the information conveyed to the perisylvian language centers. Patient is also asked to read basic symbol using visual cues and the patient has to choose appropriate words related to the pictures being shown and reading comprehension (Appendix 1) (Appendix 2). The inability of the patient to read (alexia) reflects a dysfunction to the language centers or interruptions of the connections with the visual system.

Writing

Patients who are aphasic in speech are also aphasic in writing, however, writing ability may be preserved in patients with dysarthria or verbal apraxia. The ability of the patients to perform mechanical writing is assessed before writing words, repeating the spoken objects and drawing the pictures shown by the examiner. The test was ended by requesting the patient to write a story based on a picture and the content is evaluated (Appendix 1) (Appendix 2). The areas of writing such as mechanical, grammar, syntax and contents are scored accordingly.
**Assessment Tools**

The accurate and quick diagnosis from bedside to full speech examination to determine the types of aphasia is important in confirming the localisation of cortical to oral motor lesions. This will assist the clinician in designing the best effective treatment program for the patients. At present, many assessment tools are available to perform speech examination, which can be divided into formal and informal (Table 1). This paper summarises the commonly used assessment tools by HUSM speech clinicians in clinic and bedside settings. The tools are divided to classification and non-classification test of aphasia (Table 1) (15). The classification test for aphasia that is commonly used and adapted to multi-languages are WAB-R and BDAE whereby the non-classification test for aphasia are Minnesota test for differential diagnosis of aphasia (MTDDA) (19), Porch index of communicative ability (PICA) (20), American speech and hearing association functional assessment of communication skills (ASHA FACS) (21), and communication abilities in daily living (C-ADL) (22). However, for formal screening language test, the Frenchay aphasia screening test (FAST) (18) and the language screening test (LAST) (16) has been validated to be used in emergency setting. The MTDDA and PICA tests are used for prognostic purpose whereby the ASHA FACS aims towards functional assessment on the effect of aphasia on the patient's daily activities (21). The most commonly used formal assessment tool by speech-language therapist in HUSM is the BDAE. This tool has been adapted into Bahasa Malaysia and has been used since 2012 (Appendix 1). The adaptation of these two batteries to Bahasa Malaysia reflects that Bahasa Malaysia is the main language while Malay dialect is spoken by the majority of Kelantanese people (2). The northeastern region of Peninsular Malaysia has the largest Malay language speakers due the location that is at Malaysia-Thailand border (23). Furthermore, the assessment tool is translated into Malay language since it is part of national education system and is also used for formal duty at school and working place (24). This adapted version has been used for many years in HUSM and its reliability and validity correspond to the original adaptation of BDAE, which has been used worldwide as aphasia test. The clinicians in HUSM also adapted the WAB-R, which is one of the popular aphasia tests used worldwide (Appendix 2). Video on speech examination in Bahasa Malaysia accompanies this manuscript at https://youtu.be/uyVVn4X-cSo

| Formal assessments | Informal assessment |
|--------------------|---------------------|
| **Classification test** | | |
| WAB – Western aphasia battery (5) | Bedside Neurological Speech Examination |
| BDAE – Boston diagnostic aphasia examination (4) | – |
| ANELT – Amsterdam-Nijmegen everyday language test (17) | – |
| **Formal screening tools** | | |
| FAST – Frenchay aphasia screening test (18) | |
| The language screening test (LAST) (16) | – |
| **Non-classification test** | | |
| MTDDA – Minnesota test for differential diagnosis of aphasia (19) | – |
| PICA – Porch index of communicative ability (20) | – |
| American speech and hearing association functional assessment of communication skills (ASHA FACS) (21) | – |
| Communication abilities in daily living (C-ADL) (22) | – |

Table 1. List of assessment tools for classification and non-classification test of aphasia
Outcome of the Assessment

Through the formal assessment using the adapted version, the examination of speech in Bahasa Malaysia aims to examine linguistic skills such as information content, fluency, auditory comprehension, repetition, naming and word finding, reading and writing as well as non-linguistic skills such as drawing, calculation, block design, and praxis of adults with aphasia. Both batteries have different scoring systems whereby the BDAE uses percentile rank scoring system (3) whereas WAB-R uses point scoring system (4). The outcome of both assessment tools is to achieve an accurate diagnosis for aphasia classification, to evaluate the severity of aphasia, and to determine the adult’s language functionality with aphasia for rehabilitation and treatment programme.

Conclusion and Future Studies

Directions

In this paper, the simple approach to examine Bahasa Malaysia speech using the adapted version of worldwide aphasia tests namely BDAE and WAB-R was described. These two batteries have been validated for reliability and validity to be used in many other languages apart from Bahasa Malaysia. The aims of this simple approach in examining speech in Malay speaking Malaysian population are to assist the speech clinicians and the non-speech clinicians to determine the types of aphasia in patients presented with acute setting or in the clinical setting.

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Conflict of Interest

None.

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Authors' Contributions

Conception and design: AHN, JMA
Critical revision of the article for important intellectual content: AHN, MMA, SAH, ARIG, ZZ, JMA

Correspondence

Dr Abdul Haleem Noorsham
MB BCh BAO (NUI)
Department of Neurosciences,
School of Medical Sciences, Universiti Sains Malaysia,
16150 Kubang Kerian, Kelantan, Malaysia.
Tel: +609 7676300
Fax: +609 7673833
E-mail: abdulhaleemnoorsham7@student.usm.my

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Appendix 1: Adapted version of BDAE in Bahasa Malaysia

SLT - BORANG PENILAIAN KECELARUAN BAHASA PEROLEHAN DEWASA (ADAPTAI BOSTON DIAGNOSTIC APHASIA EXAMINATION [BDAE]) UNIT PEMULIHAN PERTUTURAN-BAHASA

HOSPITAL ........................................

Nama: _______________________________ Tarikh Penilaian: ________________
No. KP/Umur: __________________________ RN: ______________________

Diagnosis Perubatan:
Kaedah Komunikasi Semasa:  [ ] Verbal  [ ] Bukan verbal  [ ] AAC
Lain-lain Kecelaran:  [ ] Tiada  [ ] Apraksia  [ ] Disartria  [ ] Resonan  [ ] Suara
Komunikasi/Penelanan:  [ ] Auditori  [ ] Komunikasi-Kognitif  [ ] Penelanan
Blok Terapi:  [  ] 1  [  ] 2  [  ] 3

I. PERBUALAN & PERTUTURAN SPONTAN

A. Respon kepada Ucapan Sosial

Arahan: Perbualan terbuka dengan pesakit untuk mendapatkan respon sebanyak yang mungkin. Tulis respon pesakit dan catatkan markah pada kotak di bawah

1. Apa khabar?

2. Apa nama penuh?

3. Pernah datang ke sini sebelum ini?

4. Suka makan apa?

5. Tinggal dekat mana?

Markah: _____ /15  [ ] Lulus (markah: 15/15)
B. Perbualan Terbuka & Penerangan Gambar

i) Perbualan terbuka

Arahan: Berbual dengan pesakit. Mulakan perbualan dengan topik yang biasa. Galakkan perbualan sekurang-kurangnya 3 minit dan cuba elakkan soalan dengan jawapan ‘ya, tidak’. Tulis respon pesakit dan catatkan markah pada kotak di bawah.

1. Dulu kerja apa?
2. Ceritakan pada saya apa yang terjadi sehingga datang ke sini.

ii) Penerangan gambar

Arahan: Minta pesakit huraikan gambar. Tunjuk pada pesakit bahagian yang diabaikan dan minta pesakit huraikan. Rekod respon pesakit. Catatkan markah pada kotak di bawah.

Tandakan (1) jika pesakit menunjukkan ciri-ciri pertuturan seperti di bawah:

| Bil | Ciri-ciri pertuturan dalam perbualan | Respon |
|-----|------------------------------------|--------|
| 1   | Pertuturan lancar                  |        |
| 2   | Memberi respon yang bersesuaian    |        |
| 3   | Mengekalkan topik perbualan        |        |
| 4   | Menggunakan ayat                   |        |
| 5   | Menggunakan frasa                  |        |
| 6   | Menggunakan perkataan tunggal      |        |
| 7   | Menggunakan struktur ayat yang bersesuaian | |
| 8   | Tiada Parafasia                    |        |
| 9   | Tiada Circumlocution               |        |
| 10  | Tiada verbal stereotype            |        |
| 11  | Tiada perseveration                |        |
| 12  | Tiada Anomia                       |        |
| 13  | Tiada Neologism                    |        |
| 14  | Tiada perkataan tidak bermakna (jargon) |       |
| 15  | Pemahaman auditor                 |        |

Skor: ___ /15  □ Lulus (markah: 15/15)
II. PEMAHAMAN AUDITORI

A. Pemahaman Perkataan

Arahan: Minta pesakit untuk menunjuk gambar yang disebut oleh terapis. Recok respon dan catatkan markah pada kotak di bawah:

| Stimulus  | Lulus (respon < 10 saat) | Gagal |
|-----------|--------------------------|-------|
| 1. bahu   |                          |       |
| 2. pipi   |                          |       |
| 3. lilin  |                          |       |
| 4. lembu |                          |       |
| 5. kacang |                          |       |
| 6. topi   |                          |       |
| 7. bas    |                          |       |
| 8. gergaji|                          |       |
| 9. semut  |                          |       |
| 10. bunga raya |                  |       |
| 11. biru  |                          |       |
| 12. coklat|                          |       |
| 13. T     |                          |       |
| 14. N     |                          |       |
| 15. 4     |                          |       |
| 16. 13    |                          |       |

Skor: ___ /16   Lulus (markah: 16/16)

B. Arahan

Arahan: Baca arahan di bawah dan minta pesakit mengikut arahan yang di beri. Satu markah diberi bagi setiap arahan yang dibuat dengan tepat. Ulangan diberikan jika diminta tetapi keseharian arahan perlu diulang. Recok respon dan catatkan markah pada kotak di bawah.

1. Pejam mata
2. Tunjuk meja dan kerusi
3. Tunjuk lampu dan pintu
4. Angkat tangan kanan dan geleng kepala
5. Sentuh setiap bahu 2 kali dengan 2 jari, dengan mata tertutup

Skor: ___ /5   Lulus (markah: 5/5)
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C. Menjawab soalan Ya/Tidak

Arahan: Baca soalan di bawah dan minta pesakit memberi respon ‘ya / tidak’. Satu markah diberi bagi setiap respon tepat. Ulangan dibenarkan jika diminta, tetapi keseluruhan ayat perlu diulang. Rekod respon dan catatkan markah pada kotak di bawah.

1. Lembu boleh terbang?
2. Minyak larut dalam air?
3. 5 lebih besar dari 3?
4. Gula rasa manis?
5. Darah warna biru?

Skor: ___ /5  [ ] Lulus (markah: 5/5)

D. Memahami petikan

Arahan : Bacakan satu cerita pendek dan tanya soalan di bawah selepas itu. Rekod respon dan catatkan markah pada kotak di bawah.

Ali terpaksa pergi ke Ipoh. Dia bercadang untuk menaiki kereta. Isterinya menghantarnya ke stesen kereta dengan kereta tetapi dalam perjalanan, tayar kereta mereka pecah. Walaubagaimanapun, mereka sempat tiba di stesen kereta dan Alipun sempat menaiki kereta tersebut.

1. Ali tertinggal kereta?
2. Ali pergi Ipoh ke?
3. Ali sempat tiba di stesen kereta?
4. Ali balik dari Ipoh?

Skor: ___ /4  [ ] Lulus (markah: 4/4)

Siti pergi ke pasar bersama ibu dan adik lelakinya. Mereka pergi dengan menaiki kereta. Dia membawa wang sebanyak RM50. Mereka membeli ayam, sayur kobil dan buah epal. Kemudian, mereka singgah makan tengahari di gerai Pak Mat. Mereka pulang ke rumah dan Siti memasak nasi ayam

1. Siti pergi mana?
2. Siti pergi dengan siapa?
3. Mereka beli apa?
4. Mereka makan tengahari kat mana?
5. Siti masak apa?

Skor: ___ /5  [ ] Lulus (markah: 5/5)
III. EKSPRESI LISAN

A. Pertuturan Automatik

Arahan: Beri bantuan bagi perkataan pertama jika perlu. Berikan bantuan selanjutnya jika perlu namun hentikan jika 4 sir atau gagal. Pemarkahan diberi bagi siri yang berturutan tanpa bantuan SLP. Rekodkan respon dan catatkan markah.

| 1. Hari dalam seminggu | 1 markah | 2 markah |
|------------------------|----------|----------|
| 1. Bilang 1 – 20       | (4 sir)  | (Semua)  |
|                        | (8 sir)  | (Semua)  |

B. Pengulangan

Arahan: Sebut stimulus di bawah dan minta pesakit mengulang kembali. Ulang perkataan/ayat sekali lagi jika diminta. Markah diberi jika respon dafahami. Rekodkan kesalahan artikulasi dan catatkan markah pada kotak di bawah.

1. Bas
2. Kopi
3. Tembikai
4. Fosha
5. Tanpul
6. Dapaha
7. Pak Abu pulang ke rumah
8. Mak Tom masak kari ayam

Skor: ___ /8 ✔️ Lulus (markah: 8/8)

C. Menamakan

Arahan: Baca ujaran di bawah, minta pesakit menamakan objekt/item yang berkaitan dengan maksud ujaran tadi. Rekodkan respon dan catat markah pada kotak di bawah.

1. Penamaan berespon

| Ayat                               | Respon               |
|------------------------------------|----------------------|
| a. Kita duduk atas apa?            |                      |
| b. Rumput warna apa?              |                      |
| c. Gula rasa apa?                 |                      |
| d. Tendang bola dengan apa?       |                      |
| e. Potong buah guna apa?          |                      |

Skor: ___ /5 ✔️ Lulus (markah: 5/5)
2. Penamaan konfrontasi (Confrontation naming)

Arahan: Tunjukkan gambar, minta pesakit menamakan gambar yang ditunjuk tadi. Rekod respon dan catatkan.

| No | Stimulus | Respon |
|----|----------|--------|
| 1  | Jam      |        |
| 2  | Bas      |        |
| 3  | Bola     |        |
| 4  | Kasut    |        |
| 5  | Cawan    |        |
| 6  | Lembu    |        |
| 7  | Bendera  |        |
| 8  | Tembikai |        |
| 9  | Matahari |        |
| 10 | Helikopter |      |

Skor: ___ /10  □ Lulus (markah: 10/10)

IV. MEMBACA

A. Mengenal pasti simbol asas

1. Memadankan huruf dan skrip

|  |  |  |  |  |
|---|---|---|---|
| G | h | Q | G | S |
| F | f | T | S | p |

Pop | BAN | TOP | Pop | dot |
OAT | AM | la | Tin | oat |

Skor: ___/4

2. Memadankan nombor (Jari kepada nombor)

|  |  |  |  |  |  |
|---|---|---|---|---|
| 5 | 6 | 4 | 5 | 3 | 2 |
| 4 | 5 | 1 | 7 | 4 | 6 |

Skor: ___/2

3. Memadankan nombor (Nombor kepada titik)

|  |  |  |  |  |  |
|---|---|---|---|---|
| 3 ... | 3 ... | 4 ... | 7 ... | 5 ... |
| 7 ... | 5 ... | 4 ... | 7 ... | 8 ... |

Skor: ___/2
B. Mengenal perkataan (padankan gambar perkataan)

1a. Jam  2a. jem  3a. bus  4a. ais  5a. beg
1b. Buku  2b. baca  3b. surat  4b. bulu  5b. Biru
1c. Katil  2c. tidur  3c. katil  4c. Tangan  5c. semut
1d. Teropong  2d. basikal  3d. telekung  4d. Helikopter  5d. Tembikai

Skor: ___/4

C. Membaca secara lisan

Arahan: Minta pesakit membaca perkataan satu persatu. Beri bantuan jika diperlukan. Markah tidak diberi pada respon dengan bantuan. Rekod respon dan catatkan markah.

1. Membaca perkataan asas

|              | 0-3 saat (3 markah) | 3-10 saat (2 markah) | 10-30 saat (1 markah) | Gagal (0 markah) |
|--------------|---------------------|-----------------------|-----------------------|------------------|
| Cas          |                     |                       |                       |                  |
| Sekat        |                     |                       |                       |                  |
| Hamper       |                     |                       |                       |                  |
| Papan        |                     |                       |                       |                  |
| Foto         |                     |                       |                       |                  |

Skor: ____/15

2. Membaca ayat dan memahami ayat yang dibaca

Arahan: Minta pesakit membaca dengan kuat. Markah diberi jika tiada kesalahan dilakukan. Rekod respon dan catatkan markah.

1. Hari yang bagus untuk ke pantai
2. Johan dan Mira menyediakan bekalan makanan tengah hari
3. Selepas memandu selama 45 minit, mereka tiba di pesisiran pantai
4. Apabila mereka habis berenang, mereka berasa amat lapar
5. Mujurlah mereka menjumpai gerai makanan yang mempunyai pelbagai pilihan makanan.

Skor: ____/5

Arahan: Terapis hanya boleh menunjuk pada pilihan jawapan dan soalan. Pesakit perlu memilih jawapan yang tepat sama ada dengan menunjuk, membaca atau kedua-duanya. Catatkan markah.

1. Cuaca pada hari itu _____
   sejuk  panas  rangup  hujan
2. Mira dan Johan menaiki _____
   keretaapi  bot  kereta  kapal terbang
3. Perjalanan itu mengambil masa selama _____
   setengah hari  5 minit  45 minit  2jam

Skor: ____/3
D. Pemahaman pembacaan

Arahan: Terapis boleh membacakan soalan dan pilihan jawapan (model terlebih dahulu). Selepas itu, Pesakit perlu membacakan pilihan soalan dan pilihan jawapan (seperti yang dilakukan oleh terapis) tanpa bantuan. Catatkan markah.

1. Anjing boleh …
   Bercakap    Menyalak    Menyanyi   Kucing

2. Encik Johan mencuci dan menggunting rambut. Dia seorang …
   Pencukur    Budak lelaki   Penjual daging   Penggunting rambut

3. Pembinaan sekolah dan jalanraya memerlukan wang dan kita bayar melalui …
   Rumah    Negara    Cukai    Polis

4. Pada masa dahulu aluminium sangat mahal untuk diasingkan, Sekarang elektir telah menyelisai masalah tersebut dan aluminium sudah menjadi …
   Sangat kukuh    Pelombong    Elektronik   Lebih murah

Skor: ____/4

V. MENULIS

A. Penulisan Mekanikal

Arahan: Minta pesakit melaksanakan 7 tugasan di bawah. Bagi pemahahan 'well-formedness', terapis tidak perlu mengambilkira huruf atau nombor yang ditulis oleh pesakit itu sama ada betul atau salah. Rekod respon dan catatkan markah.

| Well-formedness of letter | 2-all well formed, 1-partly malformed, 0-illegible | ____/14 |
| Correctness of letter choice | 3-no error, 2-half, 1-half, 0-<2correct | ____/21 |
| Motor facility | 2-not impaired, 1-laborious, 0-failure of motor control | ____/14 |

| BIL | TUGASAN | KOMEN |
|-----|---------|-------|
| 1   | Tanda tangan |       |
| 2   | Tulis nama |       |
| 3   | Dengar & Eja huruf (T-G-R-S-B) |       |
| 4   | 'Tiru : “HARAPKAN PAGAR, PAGAR MAKAN PADI” |       |
| 5   | ‘Tiru singkatan nama (PM-YB-TV-UKM-KL) |       |
| 6   | Tulis nombor 1-20 |       |
| 7   | Dengar & tulis nombor (2-12-9-11-6) |       |
B. Kebolehan mengeja

Arahan: Minta pesakit menulis perkataan yang disebut. Rekodkan respon dan catatkan markah.

1. Perbendaharaan kata primer

   a. cat ___________  
   b. lari ___________  
   c. pergi ___________  
   d. kucing ___________  

   Skor: ____/4

2. Fonik biasa

   a. jag ___________  
   b. telefon ___________  
   c. pemandu ___________  
   d. tomato ___________  
   e. pingpong ___________  

   Skor: ____/5

C. Menamakan Gambar/Objek Secara Bertulis

Arahan: Minta pesakit menulis nama objek, gambar atau perbuatan yang ditunjukkan oleh pegawai. Catatkan markah

1. Objek
   - pokok, sudu, bot, tali  
   Skor: ____/4

2. Perbuatan
   - berenang, menyapu, tidur, sepak  
   Skor: ____/4

3. Haiwan
   - lembu, tupai, ayam, harimau  
   Skor: ____/4

D. Menulis Cerita

Arahan: Tunjuk gambar ‘cookie thief picture’, minta pesakit, menulis sebanyak mungkin ayat tentang gambar tersebut. Jika pesakit tidak dapatmelakukannya dengan mudah, tanya 5 soalan untuk membantu pesakit.

1. Apa kaitan orang-orang dalam gambar ini?
2. Apa yang berlaku di belakang wanita itu?
3. Mengapa budak perempuan itu mendarah budak lelaki itu membuat bising.
4. Mengapa anda fikir budak lelaki itu mungkin akan tercedera?
5. Apa lagi perkara yang terjadi pada emak?
Pemarkahan: Markah diberikan berdasarkan 4 dimensi seperti di bawah. Ia dinilai berdasarkan kehadiran ciri-ciri yang disasarkan seperti 'Perempuan/emak itu, budak lelaki itu'. Penjelasan kualitatif seperti berikut:

| Mekanik          | Akses tatabahasa bertulis | Sintaks          | Kecukupan Isi |
|------------------|---------------------------|------------------|---------------|
| 2- cantik terbentuk | 3-cukup                   | 3-semua betul    | 3-cukup       |
| 1- boleh dibaca tapi ada kecacatan | 2-beberapa perkara penting hilang | 2-sedikit kecacatan dalam struktur ayat | 2-penting tapi tak cukup |
| 0-kebayakannya boleh dibaca minima | 1-<dari 8 perkataan penting | 1-kebayakannya pengumpulan subklausa penting | 1-maklumat |
| Kualitatif:      |                           |                  |               |
| 1. Menulis perkataan majmuk yang tidak penting | Berulang | kadang-kadang | tak pernah |
| 2. Penggantian perkataan tunggal | Berulang | kadang-kadang | tak pernah |
| 3. Komen (jika ada): |                           |                  |               |

KOMEN (Jika ada):

| SESI   | ULASAN |
|--------|--------|
| PENILAIAN |
| P1     |        |
| P2     |        |

| SESI TERAPI |
|------------|
| T1         |
| T2         |
| T3         |
| T4         |
| T5         |
| T6         |

Kefungsi Komunikasi Optimum tercapai apabila tahap keterukan pesakit berada pada tahap RINGAN (MILD)

Mencapai Kefungsi Komunikasi Optimum [ ] Ya [ ] Tidak

Dilaksanakan oleh: ____________________________
Appendix 2: Adapted version of WAB-R in Bahasa Malaysia

Name: D.O.B: Gender:
Age: Date of session: Ethnic:

SPONTANEOUS SPEECH

A. Conversational Questions

| Item                                                      | Respon | Betul | Salah |
|----------------------------------------------------------|--------|-------|-------|
| 1. Apa khabar puan? / Puan sihat ke hari ini?           |        |       |       |
| 2. Pernahkah Puan datang ke sini sebelum ni?            |        |       |       |
| 3. Apakah nama pertama dan nama terakhir Puan?          |        |       |       |
| 4. Apakah alamat penuh rumah Puan?                      |        |       |       |
| 5. Apakah pekerjaan Puan?                               |        |       |       |
| 6. Kenapa Puan di sini (dalam hospital)? Apa yang membimbangkan Puan? |        |       |       |

B. Huraikan Gambar

Arahan: Ceritakan apa yang berlaku dalam gambar ini?
Prompt: Cuba puan bagitahu dalam bentuk ayat.
PEMAHAMAN PERTUTURAN AUDITORI

A. Yes/No Questions

| Item | Target respon | Jenis respon (verbal, gesture, eye blink, no respon) | Skor: Betul-2 Salah-0 |
|------|---------------|-----------------------------------------------------|----------------------|
| 1. Nama puan Fatimah ke? | Tidak | verbal, gesture, eye blink, no respon | 2 |
| 2. Nama puan Joyah ke? | Tidak | verbal, gesture, eye blink, no respon | 0 |
| 3. Nama puan Rakiah ke? | Ya | verbal, gesture, eye blink, no respon | 0 |
| 4. Puan tinggal di _______? | Tidak | verbal, gesture, eye blink, no respon | 0 |
| 5. Puan tinggal di _______? | Ya | verbal, gesture, eye blink, no respon | 0 |
| 6. Puan tinggal di _______? | Tidak | verbal, gesture, eye blink, no respon | 0 |
| 7. Adakah Puan perempuan? | Ya | verbal, gesture, eye blink, no respon | 0 |
| 8. Adakah Puan seorang doktor? | Tidak | verbal, gesture, eye blink, no respon | 0 |
| 9. Saya perempuan betul? | Ya | verbal, gesture, eye blink, no respon | 0 |
| 10. Adakah lampu dalam bilik ni dibuka? | Ya | verbal, gesture, eye blink, no respon | 0 |
| 11. Adakah pintu ditutup? | Ya | verbal, gesture, eye blink, no respon | 0 |
| 12. Sini ialah hotel betul? | Tidak | verbal, gesture, eye blink, no respon | 0 |
| 13. Sini ialah hospital ke? | Ya | verbal, gesture, eye blink, no respon | 0 |
| 14. Puan pakai baju warna ____ betul? | Tidak | verbal, gesture, eye blink, no respon | 0 |
| 15. Adakah kertas terbakar dalam api | Ya | verbal, gesture, eye blink, no respon | 0 |
| 16. Bulan March datang sebelum bulan Jun? | Ya | verbal, gesture, eye blink, no respon | 0 |
| 17. Puan makan pisang sebelum membuang kulitnya ke? | Tidak | verbal, gesture, eye blink, no respon | 0 |
| 18. Hari Kemerdekaan pada bulan Julai ke? | Tidak | verbal, gesture, eye blink, no respon | 0 |
| 19. Adakah kuda lebih besar daripada kambing? | Ya | verbal, gesture, eye blink, no respon | 0 |
| 20. Encik potong rumput menggunakan kapak ke? | Tidak | verbal, gesture, eye blink, no respon | 0 |

B. Pengenalan Perkataan Auditori

| Object sebenar | Object bergambar | Bentuk | Huruf | Nombor |
|----------------|------------------|--------|-------|--------|
| 1. Cawan       | 7. Mancis        | 13. Segi empat | 19. J | 5      |
| 2. Lilin       | 8. Cawan         | 14. Segi tiga | 20. F | 61     |
| 3. Pensel      | 9. Sikat         | 15. Bulat | 21. B | 500    |
| 4. Bunga       | 10. Pemutar skru | 16. Anak panah | 22. K | 1867   |
| 5. Sikat       | 11. Pensel       | 17. Pangkah | 23. M | 32     |
| 6. Pemutar skru| 12. Bunga        | 18. Silinder | 24. D | 5000   |
C. Arahan Berturutan

| Item | Skor |
|------|------|
| 1. Angkat tangan | |
| 2. Tutup mata | |
| 3. Tunjukkan kerusi | |
| 4. Tunjuk tingkap, lepas tu tunjuk pintu | |
| 5. Tunjuk pen dan buku | |
| 6. Tunjuk buku dengan menggunakan pen | |
| 7. Tunjuk pen dengan menggunakan buku | |
| 8. Tunjuk sikat dengan menggunakan pen. | |
| 9. Tunjuk sikat dengan menggunakan buku | |
| 10. Letak pen atas buku dan bagi saya. | |
| 11. Letak sikat di tepi pen dan terbalikkan buku. | |

PENGULANGAN

*Puan ulang balik apa yang I cakap.*

| Item | Skor |
|------|------|
| 1. kad | |
| 2. bas | |
| 3. paip | |
| 4. tingkap | |
| 5. pisang | |
| 6. keretapi | |
| 7. empat puluh lima | |
| 8. Sembilan puluh lima peratus | |
| 9. enam puluh dua dan setengah | |
| 10. pemasak rendang berasa gembira | |
| 11. telefon sedang berdering | |
| 12. Dia tidak akan balik | |
| 13. Roti bakar segar dan sedap | |
| 14. tiada kalau, dan atau tetapi | |
| 15. Bekas saya dipenuhi dengan lima belas botol air mineral. | |
PENAMAAN DAN PENCARIAN PERKATAAN

A. Penamaan objek

| Item          | Respon | Tactile cue | Phonemic cue | Semantic cue |
|---------------|--------|-------------|--------------|--------------|
| Buku          |        |             |              |              |
| Bola          |        |             |              |              |
| Duit syiling  |        |             |              |              |
| Cawan         |        |             |              |              |
| Pin keselamatan|       |             |              |              |
| Gunting       |        |             |              |              |
| Berus gigi    |        |             |              |              |
| Pemadam       |        |             |              |              |
| Mangga kunci  |        |             |              |              |
| Pensel        |        |             |              |              |
| Pemutar skru  |        |             |              |              |
| Kunci         |        |             |              |              |
| Klip kertas   |        |             |              |              |
| Jam           |        |             |              |              |
| Sikat         |        |             |              |              |
| Gelang getah  |        |             |              |              |
| Sudu          |        |             |              |              |
| Polekat       |        |             |              |              |
| Garfu         |        |             |              |              |
| Lilin         |        |             |              |              |

B. Word Fluency

Berikan nama haiwan sebanyak yang boleh dalam masa seminit.

C. Sentence Completion

| Item                                      | Target Respon |
|-------------------------------------------|---------------|
| Rumput berwarna ______                   | hijau         |
| Gula adalah ______                       | Manis, putih  |
| Bunga epal berwarna merah, buah pisang berwarna ______ |             |
| Meraka saling membantu bagi aur dengan ______ |             |
| Hari Kemerdekaan Malaysia ialah dalam bulan ______ |             |
D. Responsive speech

| Item                             | Target respon | Respon lain        |
|---------------------------------|---------------|--------------------|
| Kita tulis guna apa?            | Pen/ pensel   |                    |
| Warna duan ialah apa?           | Hijau         |                    |
| Satu minggu ada berapa hari?    | Tujuh         |                    |
| Di manakah jururawat bekerja?   | Hospital      |                    |
| Di manakah kita boleh dapat setem? | Post office/pejabat pos |        |

Oral Motor Examination

| Structure and innervation | Tested by                                      | Observation                                      |
|--------------------------|------------------------------------------------|--------------------------------------------------|
| Facial : CN 7             | - symmetry                                     |                                                  |
|                          | - close eyes                                   |                                                  |
|                          | - wrinkle brow                                 |                                                  |
| Lips: CN 7               | - smile                                        |                                                  |
|                          | - kiss                                         |                                                  |
|                          | - puff cheek                                   |                                                  |
|                          | - Resist force to open lip                     |                                                  |
| Jaw: CN 5                | - Jaw open to resistance                       |                                                  |
|                          | - Jaw lateralization                           |                                                  |
| Tongue: CN 12            | - Lingual movement to superior, lateral, inferior |                                                  |
| (Strength, speed, accuracy, range of motion, tone and stability) | - Resistance to tongue depressor anteriorly |                                                  |
|                          | - Resistance to force laterally at cheeks      |                                                  |
| Velum: CN 9 & 10         | - Symmetrical upward movement                  |                                                  |
|                          | - Gag reflex                                   |                                                  |
| Larynx: CN 10            | - Volitional cough                             |                                                  |
|                          | - Vocal quality                                |                                                  |

Diadochokinetic

| Stimulus | Duration | Description                      | Norms                                      |
|----------|----------|-----------------------------------|--------------------------------------------|
| papapa   |          |                                   | AMR – 25 to 35/5 seconds                  |
| tatata   |          |                                   | SMR – 15 to 37.5/5 seconds                |
| kakaka   |          |                                   |                                            |
| pataka   |          |                                   |                                            |
REVIEW

A. Reading Comprehension Of Sentences

Tunjukkan ayat (satu ayat per kad). Arahkan pesakit untuk baca ayat dan tunjuk kepada perkataan yang hilang. Sewaktu memberi arahan kepada pesakit, sertakan isyarat dan tunjuk kepada perkataan yang hilang dan pilihan jawapan. Ulang arahan jika pesakit tidak faham. Suruh pesakit jawab contoh soalan dahulu. Jika pesakit tunjuk kepada jawapan yang salah, bantunya dengan tunjuk kepada jawapan yang betul dan kata ‘tengok, ini perkataan yang hilang’

1. Hujan
   - Biru
   - Basah
   - Pasar
   - Laut

2. Askar bawa
   - Senjata
   - Tembak
   - Permata
   - Barang runcit

3. Encik Samad membaiki kereta dan lori. Dia adalah
   - Tukang jahit
   - Mesin
   - Mekanik
   - Bas

4. Cikgu kembali ke sekolah selepas habis musim cuti. Cikgu mengajar
   - Daun
   - Kanak-kanak
   - Tengkujuh
   - Buku

5. Penyodok dan gergaji adalah alatan dari kumpulan yang sama. Ia mempunyai bahagian yang diperbuat dari
   - Petani
   - Hutan
   - Besi
   - Potong
6. Petani menghasilkan tepung, jagung dan lain-lain. Petani juga menghasilkan
   - Arang
   - Traktor
   - Bumi
   - Sayur

7. Kita mempunyai tenaga yang banyak pada satu masa dahulu. Akibat kekurangan minyak, banyak
   negara telah beralih kepada sumber alternative seperti
   - Air mendidih
   - Sungai
   - Matahari
   - Ekonomi

8. Titanic adalah sebuah kapal laut yang dianggap tidak akan tenggelam tetapi ia merempuh aisberg
   dan tenggelam pada tahun 1912, membunuh hampir beribu orang. Ia tidak akan tenggelam jika tidak
   - Hilang kuasa
   - Rosak teruk
   - Membawa penumpang
   - Pergi ke barat

B. Reading Commands

Tunjukkan setiap kad dan beri arahan ‘saya nak Encik baca kuat-kuat dan ikut apa yang diarahkan’.
Ulang arahan jika pesakit hanya buat salah satu tugas.

1. Angkat tangan
2. Lambai ‘bye’
3. Tutup mata
4. Lukis pangkah menggunakan kaki
5. Tunjuk kepada kerusi, dan kepada pintu
6. Ambil pensil, ketuk tiga kali dan letak semula

C. Written Word Stimulus – Object Choice Matching

Letak objek secara rawak. Arah pesakit untuk tunjuk kepada objek yang dibaca dalam perkataan di kad
22-27.

1. Cawan
2. Sikat
3. Pensil
4. Bunga
5. Mancis
6. Pemutar skru

D. Written Word Stimulus – Object Choice Matching

Letak kad 2 yang mempunyai gambar. Arah pesakit untuk tunjuk kepada gambar yang berpasang dengan perkataan yang diletak. Perkataan diletak berasingan pada kad 22-27.

1. Bunga
2. Mancis
3. Cawan
4. Pemutar skru
5. Sikat
6. Pensil

E. Picture Stimulus – Written Word Choice Matching

Letakkan Kad 34 mempunyai senarai perkataan. Arah pesakit untuk tunjuk kepada perkataan yang sama dengan gambar. Gambar diletak berasingan pada kad 28-33.

1. Cawan
2. Pensil
3. Pemutar skru
4. Mancis
5. Bunga
6. Sikat

F. Spoken Words – Written Word Choice Matching

Letak kad 35-38 dan suruh pesakit pilih perkataan dari 5 pilihan jawapan yang disebut oleh SC. Contohnya ‘tunjukkan saya perkataan bunga’

1. Kakak pekak pokok gagak perak
2. Cincin licin makin patin miskin
3. Seluar keluar jadual peluang beruang
4. Conteng ponteng ranting canting gunting
G. Letter Discrimination

Gunakan markah yang diperoleh pada ‘letter identification’ di ‘auditory word recognition’ subtest. Jika markah adalah 3 atau kurang, guna ‘letter matching task’ dengan meletakkan setiap huruf J, F, B, K, M, D dan arah pesakit untuk tunjuk kepada pilihan huruf di kad 4.

H. Spelled Word Recognition

Arah pesakit untuk namakan perkataan yang dieja oleh SC. Jika pesakit tidak faham arahan, beri contoh yang tiada dalam senarai ujian.

Y-a
d-a-m
k-a-r-i
s-e-l-u-a-r
k-e-r-t-a-s
t-e-l-e-f-o-n

I. Spelling

Arah pesakit untuk eja perkataan berikut (disebut oleh SC). Beri contoh “dam, d-a-m” jika pesakit tidak faham arahan.

Di
Jam
Kaki
Rumah
Pensil
Kerjasama

WRITING

A. Writing on Request

Menyuruh pesakit untuk menulis nama dan alamat rumahnya sendiri.

B. Written Output

Tunjukkan gambar (Card 1). Arahkan pesakit untuk menulis cerita tentang apa yang berlaku dalam gambar tersebut. Berikan masa 3 minit dan galakkan pesakit untuk tulis dalam ayat sekiranya pesakit tulis dalam perkataan.
Special Communications | Neurological examination of speech in Bahasa Malaysia

C. Writing to Dictation

Arahkan pesakit untuk menulis ayat yang terapis sebut “Bungkuskan kotak saya dengan mengisikan 5 jug air kordial”

Hentikan penilaian sekiranya pesakit mendapat markah 40 atau lebih di A, B dan C.

WRITING OF DICTATED OR VISUALLY PRESENTED WORDS

Arahkan pesakit untuk tulis perkataan yang anda sebut. Sekiranya pesakit tidak faham, tunjukkan objek sebenar dan beri gerakan (gestures) supaya pesakit menulis nama objek tersebut. Jika pesakit masih gagal, terapis eja perkataan tersebut. Jika masih gagal, suruh pesakit isikan tempat kosong dengan memberikan dua abjad contoh bola “_o_a”

| Markah penuh sekiranya berjaya menulis terus atau dgn bantuan objek | Markah 1/2 sekiranya dengan bantuan ejaan atau isikan tempat kosong |
|--------------------------|----------------------|
| Cawan                   |                      |
| Jam                      |                      |
| Hidung                  |                      |
| Telefon                  |                      |
| Pemutar skru             |                      |

A. Alphabet and Numbers

Arahkan pesakit untuk menulis abjad (A-Z) dan nombor (0-20).

B. Dictated Letters and Numbers

Arahkan pesakit untuk menulis abjad dan nombor yang disebut oleh terapis.

1) D, M, J, B, F
2) 5, 61, 32, 700, 1867

C. Copying of Words of a Sentence

Tunjukkan kad nombor 39 dan suruh pesakit tulis semula.

APRAXIA

Beritahu pesakit ” Saya akan suruh anda untuk melakukan beberapa perkara, cuba dan lakukan sebaik mungkin”. Jika pesakit gagal untuk mengikuti arahan dengan baik, tunjukkan cara (imitate the action). Jika masih gagal, berikan objek sebenar (where applicable)".
Dengan arahan | Dengan imitation | Dengan objek
---|---|---
Upper limb  
1. Buat penumbuk  
2. Buat tabik  
3. Buat bye-bye  
4. Garu kepala  
5. Petik jari

Facial  
1. Jelir lidah  
2. Tutup mata  
3. Bersiul  
4. Bau bunga*  
5. Tiup mancis*

Instrumental  
1. Guna sikat*  
2. Guna berus gigi*  
3. Guna sudu untuk makan*  
4. Guna penkul*  
5. Guna kunci*

Complex  
1. Pura-pura bawa kereta  
2. Pura-pura ketuk pintu dan buka pintu  
3. Pura-pura lipat kertas*  
4. Pura-pura nyalakan mancis  
5. Pura-pura main piano

**READING COMPREHENSION OF SENTENCES**

Tunjukkan ayat (satu ayat per kad). Arahkan pesakit untuk baca ayat dan tunjuk kepada perkataan yang hilang. Sewaktu memberi arahan kepada pesakit, sertakan isyarat dan tunjuk kepada perkataan yang hilang dan pilihan jawapan. Ulang arahan jika pesakit tidak faham. Suruh pesakit jawab contoh soalan dahulu. Jika pesakit tunjuk kepada jawapan yang salah, bantunya dengan tunjuk kepada jawapan yang betul dan kata 'tengok, ini perkataan yang hilang'

1. Hujan  
   - Biru  
   - Basah  
   - Pasar  
   - Laut
2. Askar bawa
   - Senjata
   - Tembak
   - Permata
   - Barang runcit

3. Encik Samad membaiki kereta dan lori. Dia adalah
   - Tukang jahit
   - Mesin
   - Mekanik
   - Bas

4. Cikgu kembali ke sekolah selepas habis musim cuti. Cikgu mengajar
   - Daun
   - Kanak-kanak
   - Tengkujuh
   - Buku

5. Penyodok dan gergaji adalah alatan dari kumpulan yang sama. Ia mempunyai bahagian yang diperbuat dari
   - Petani
   - Hutan
   - Besi
   - Potong

6. Petani menghasilkan tepung, jagung dan lain-lain. Petani juga menghasilkan
   - Arang
   - Traktor
   - Bumi
   - Sayur

7. Kita mempunyai tenaga yang banyak pada satu masa dahulu. Akibat kekurangan minyak, banyak negara telah beralih kepada sumber alternative seperti
   - Air mendidih
   - Sungai
   - Matahari
   - Ekonomi

8. Titanic adalah sebuah kapal laut yang dianggap tidak akan tenggelam tetapi ia merempuh aisberg dan tenggelam pada tahun 1912, membunuh hampir beribu orang. Ia tidak akan tenggelam jika tidak
   - Hilang kuasa
   - Rosak teruk
   - Membawa penumpang
   - Pergi ke barat
Angkat tangan

Lambai ‘bye’

Tutup mata

Lukis pangkah menggunakan kaki
Tunjuk kepada kerusi, dan kepada pintu

Ambil pensil, ketuk tiga kali dan letak semula

Cawan

Sikat

Pensil
Bunga

Mancis

Pemutar skru

Cawan

Pensil

Pemutar skru
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Mancis

Bunga

Sikat

Kakak

Pekak

Pokok
Gagak

Perak

Cincin

Licin

Makin

Patin
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Miskin

Seluar

Keluar

Jadual

Peluang

Beruанг
Conteng

Ponteng

Ranting

Canting

Gunting

Bekas saya dipenuhi dengan lima belas botol air mineral.