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Design principles for communication support board using pictorial symbols

*Principes de conception pour le conseil de support de communication
utilisant des symboles illustrés*



Reference number
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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 173, *Assistive products for persons with disability*, Subcommittee SC 7, *Accessible design*.

Introduction

This International Standard provides design principles for usable communication support boards that assist in transcending regional/cultural and linguistic barriers and is of substantial benefit for those persons who is to rely on a visual strategy to express their communicative intent.

A communication support board is a tool designed for the use of visual symbols (such as pictorial symbols) to facilitate communication and social interaction when expressive/receptive communication is limited due to physical or linguistic barriers.

Pictorial symbols, as visual expressions internationally, remove communication barriers in daily life when the characteristics of the pictorial symbols are easy to understand and able to be applied regardless of regional/cultural differences.

There are several user groups of pictorial symbols ranging from those who have poor or no communication abilities to those who require enhanced communication support.

It is important that the symbols used for the communication board correspond with the symbols visible in the environment to facilitate communication for the individual using the communication board in society.

In addition, the usage of communication support boards encourages inclusiveness in society for the user.

Design principles for communication support board using pictorial symbols

1 Scope

This International Standard specifies basic configurations for communication support boards, which are necessary to facilitate communication. A variety of communication support boards can be designed for specific communication purposes.

This International Standard specifies basic elements common to different types of formats/media, such as simple boards, book style or digital media. This International Standard does not regulate any specific design or any specific pictorial symbols for communication support boards.

As for design principles of pictorial symbols, this International Standard introduces examples of design principles applicable when designing and developing pictorial symbols.

NOTE Examples of basic pattern used to create pictorial symbols are shown in [Annex A](#). Examples of communication support boards using pictorial symbols are shown in [Annexes B](#) and [C](#).

2 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

2.1

graphical symbol

visually perceptible figure with a particular meaning used to transmit information independently of language

[SOURCE: ISO 17724:2003]

2.2

pictorial symbol

visual figure which comprises representational and abstract symbols, sometimes used in multiple combinations

2.3

communication support board

tool to support persons who have difficulties communicating

Note 1 to entry: It can be used in various situations and places, such as for private, public and educational usage.

Note 2 to entry: This includes difficulties communicating orally or when language is a barrier to express communicative intent.

3 Basic configuration of a communication support board

3.1 Board

a) **Size**

Size should be suitable for the intended users and intended usage.

b) **Material**

A communication support board can be made of paper or plastic.

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In case of paper, surface lamination is recommended to facilitate writing necessary matters and erasing such when needed.

c) **Formats/media**

There are various types of formats/media that can be used:

- 1) a single page communication support board;
- 2) a book-style is more practical especially when several pages are required;
- 3) digital media.

When the communication support board is composed of several pages, it is recommended to be classified by category, such as transport facilities, food and drink, sequences of daily life, etc.

NOTE Examples of communication support boards are given in [Annex C](#).

d) **Background colour**

It is advisable to use white background. However, a coloured background of a board, exclusive of the symbols, can be used for effect.

When multiple symbols are being displayed on a single board, then it is advisable to use white background for the board, to contrast with the background of individual symbols which are mostly in black.

NOTE Examples of coloured backgrounds are given in [Figure C.6](#).

3.2 Indication item

a) **Title**

A title should be located at the upper part of a communication support board so that the intended use might be easily understood. It should be presented in the first screen in digital media. The title can consist of pictorial symbols and/or text.

b) **Typeface**

A typeface for use on a communication support board should be carefully chosen, based on the following guidelines:

- 1) sans serif typeface or typeface with very small serifs;
- 2) regular or bold weight.

NOTE Examples of typefaces are shown in [Annex E](#).

c) **Language**

When text is needed, it should be written in the official language/languages of the country. In order to facilitate the usage of a communication support board, text could be translated in English. In case of using multi-languages, it should be limited to four languages on a single board.

In digital media, change of multiple languages should be realized by changing screen or configuration.

d) **Pictorial symbols**

- 1) The design of symbols on one board should be consistent.
- 2) Symbols should be in contrast to the background and responsive to safety colours.
- 3) Pictorial symbols should be clear, crisp and bold.

When using pictures or photos in any case, they should be of high quality.

e) **Layout of pictorial symbols**

- 1) Framing pictorial symbols within the same category in one box should be distinguished from other information (e.g. text or symbols) and arranged sequentially.
- 2) In order to make each symbol clear and recognizable, the number of pictorial symbols should be appropriate according to size of formats/media.

NOTE Examples are shown in [Figure C.4](#).

- 3) Pictorial symbols, regarding safety and emergency, which have high priority, should be arranged in the uppermost section of a communication support board.
- 4) Combination of pictorial symbols and graphical symbols can be used.
- 5) Combination of pictorial symbols, photos and illustrations can be used.
- 6) Animation features can be used in digital media.
- 7) Pictorial symbols to indicate common answers and phrases on individual boards, such as 'Yes', 'No' and 'No idea', should be placed to facilitate conversation.

NOTE Examples of combination of pictorial symbols, photos and illustrations are given in [Annex B](#).

f) **Captions**

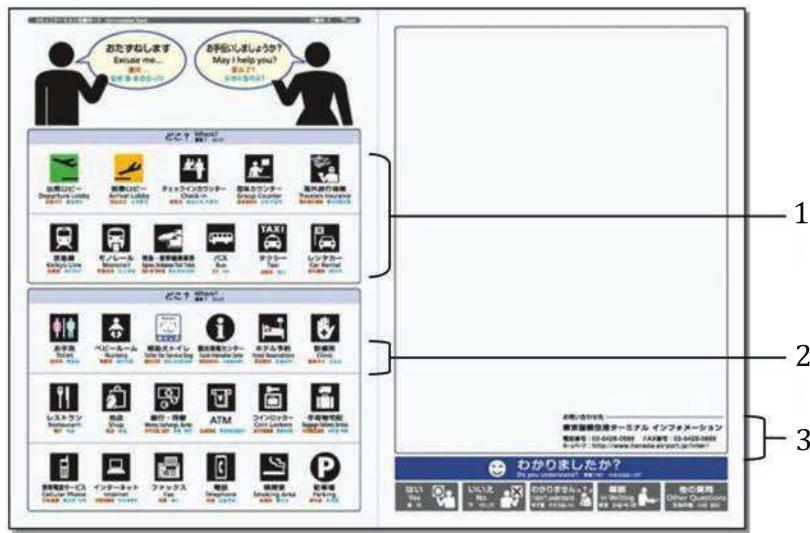
When using captions to explain the meaning of pictorial symbols, they should be located at upper or lower areas of pictorial symbols.

g) **Blank space**

Blank space to write supplemental issues can be provided at the front or the back of communication support board.

h) **Publisher**

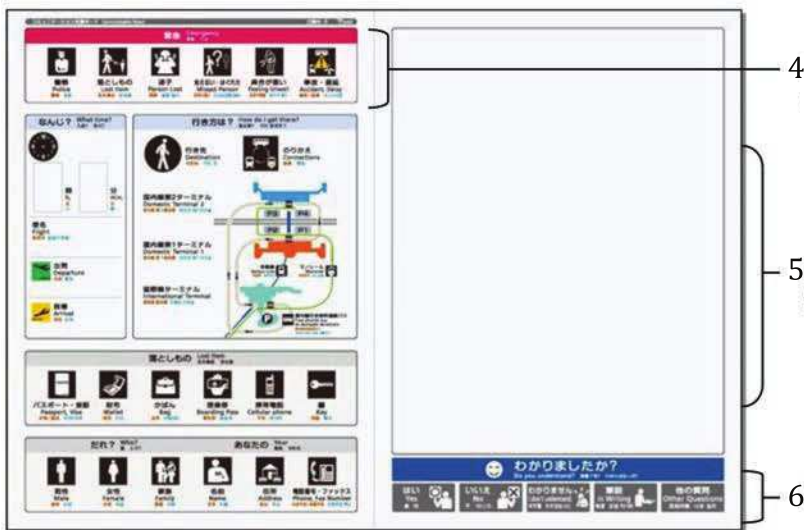
Information about the publisher and where inquiries can be made should be placed at the lower part or at the back of a communication support board. In digital media, it should be presented on the last screen.



Left side

Right side

Front page



Left side

Right side

Back page

Key

- 1 combination of pictorial symbols and graphical symbols
- 2 captions to explain the meaning of pictorial symbols
- 3 information about the publisher and where inquiries can be made
- 4 high priority pictorial symbols should be arranged in the uppermost section
- 5 blank space to write supplemental issues
- 6 common answer and phrases

Figure 1 — Layout sample

4 Principles of designing pictorial symbols

The following principles relate to the design of pictorial symbols.

a) Consistency

When creating new pictorial symbols, consistency should be maintained with existing pictorial symbols and pictorial symbols of the same category. If conventional symbols, which are widely used in society, are applicable as pictorial symbols, it is imperative that harmonization between them should be examined. If the symbols are accepted as International Standards, then special consideration should be made to avoid confusion with other pictorial symbols (see Figures 2 and 3).



NOTE See ISO 7001.

Figure 2 — Telephone



Figure 3 — Telephone

b) Solid colour or silhouette

In principle, a pictorial symbol should be drawn in white on black background (see Figures 4 and 5). However, drawing in black on white background can be used.



Figure 4 — Black background



Figure 5 — Objects drawn in white (Pharmacy)

c) Simple expressions

A pictorial symbol should be drawn simply and clearly. It should express essential characteristics so as to be readily identified by the observer to facilitate communication (see Figures 6 and 7).



Figure 6 — Dog



Figure 7 — Have a stomach ache

d) **Contrast expressions**

Paired concepts (e.g. big and small) can be illustrated together to enhance comprehensibility (see Figures 8 and 9).

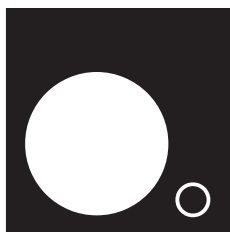


Figure 8 — Big

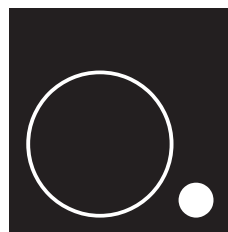


Figure 9 — Small

e) **Clarification of main themes**

When a part of a group is illustrated in a pictorial symbol, the principal objects should be the focus in white, while the other objects can be drawn with white lines (see Figures 10 and 11).



Figure 10 — Friend



Figure 11 — Riding teacher

f) **Detailed expressions**

It is important to pay attention to typical characteristics for communication purposes, such as a pedal of a bicycle, an engine of a motorbike, stems of a persimmon and a tomato when illustrating similar objects in a category (see Figures 12, 13, 14 and 15).



Figure 12 — Bicycle



Figure 13 — Motorcycle



Figure 14 — Persimmon



Figure 15 — Tomato

g) Thickness of lines

For one pictorial symbol, preferably no more than two kinds of thickness should be used to draw lines (see Figures 16 and 17). Details of drawing pictorial symbols are shown in [Annex A](#).

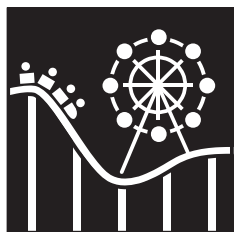


Figure 16 — Amusement park



Figure 17 — Supermarket

h) Natural description

Pictorial symbols representing living creatures or nature should maintain the essential characteristics (see Figures 18 and 19).



Figure 18 — River

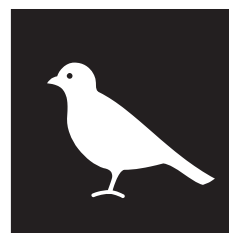


Figure 19 — Bird

Pictorial symbols of human characteristics should be representative of natural human forms (see Figures 20 and 21).



Figure 20 — Man



Figure 21 — Running

i) **Motion expressions**

As a technique to express motion in pictorial symbols, arrows can be used (see Figures 22 and 23). Animation features can be used in digital media.



Figure 22 — To take



Figure 23 — To put

j) **Combinations of symbols**

When designing pictorial symbols, already established pictorial symbols can be combined in the same frame, such as “children” combined with “school” means “pre-school” (see [Figure 24](#)). Other combined examples are shown as Figures 25, 26, 27 and 28.



Figure 24 — Pre-school

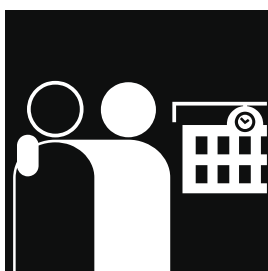


Figure 25 — School-friend



Figure 26 — Wheelchair dancing

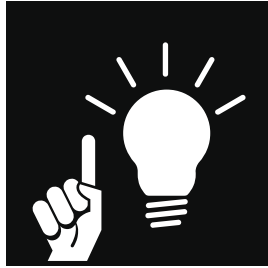


Figure 27 — Got an idea



Figure 28 — Parking garage

k) Identification of locations

Drawing symbols of the items or activities within a stylized format of a building helps to identify the location where these items can be obtained and to differentiate the items from these locations.

NOTE Examples of items from locations are as follows:

- medication from pharmacy (Figure 5);
- shopping cart/grocery from supermarket (Figure 17);
- outdoor parking from a parking garage (Figure 28).

Annex A (informative)

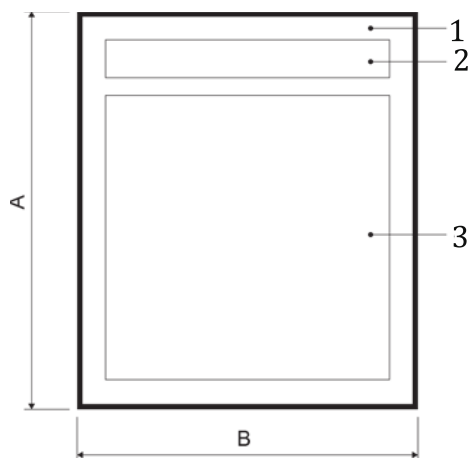
Example of creation of original forms of pictorial symbols — Basic pattern

A.1 General

This Annex specifies basic patterns used to create new pictorial symbols.

A.2 Basic pattern

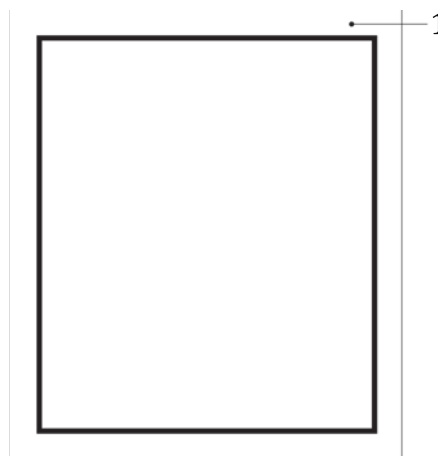
Basic patterns are depicted in Figures A.1 and A.2.



Key

- 1 basic area
- 2 text area
- 3 subject area

Figure A.1 — Basic pattern



Key

- 1 frame

Figure A.2 — Basic pattern with frame

A.3 Creation principles

A.3.1 Basic area

Using the basic pattern for the creation of pictorial symbols, specific formats are identified (see Figures A.1 and A.2). The pictorial symbols should be drawn in a square $A \times B$ with the border of at least 1 % of A .

A.3.2 Basic area with text

Text can be included in the basic area and should be placed above the pictorial symbol.

A.3.3 Basic area with added frame

A frame can be added around the basic area.

A.3.4 Line width of pictorial symbols

The basic line width for the creation of pictorial symbols should be a minimum of 1 mm. For practical use to strengthen intelligibility, visibility, readability and processing technology, the line width can be changed.

Annex B (informative)

Combination of pictorial symbols, photos and illustrations

To facilitate communication, pictorial symbols can be used in combination with photos and illustrations. Symbols can also be replaced with photos and illustrations (see [Figures B.1, B.2, B.3, and B.4](#)).

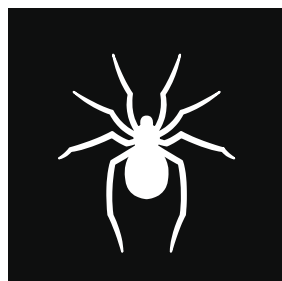


Figure B.1 — We are looking for spiders and ants



Figure B.2 — Doctor photo



Figure B.3 — Currency illustration



Figure B.4 — Currency photo

Annex C (informative)

Classification 1 of communication support boards

This Annex provides design examples of communication support boards as described in this International Standard.

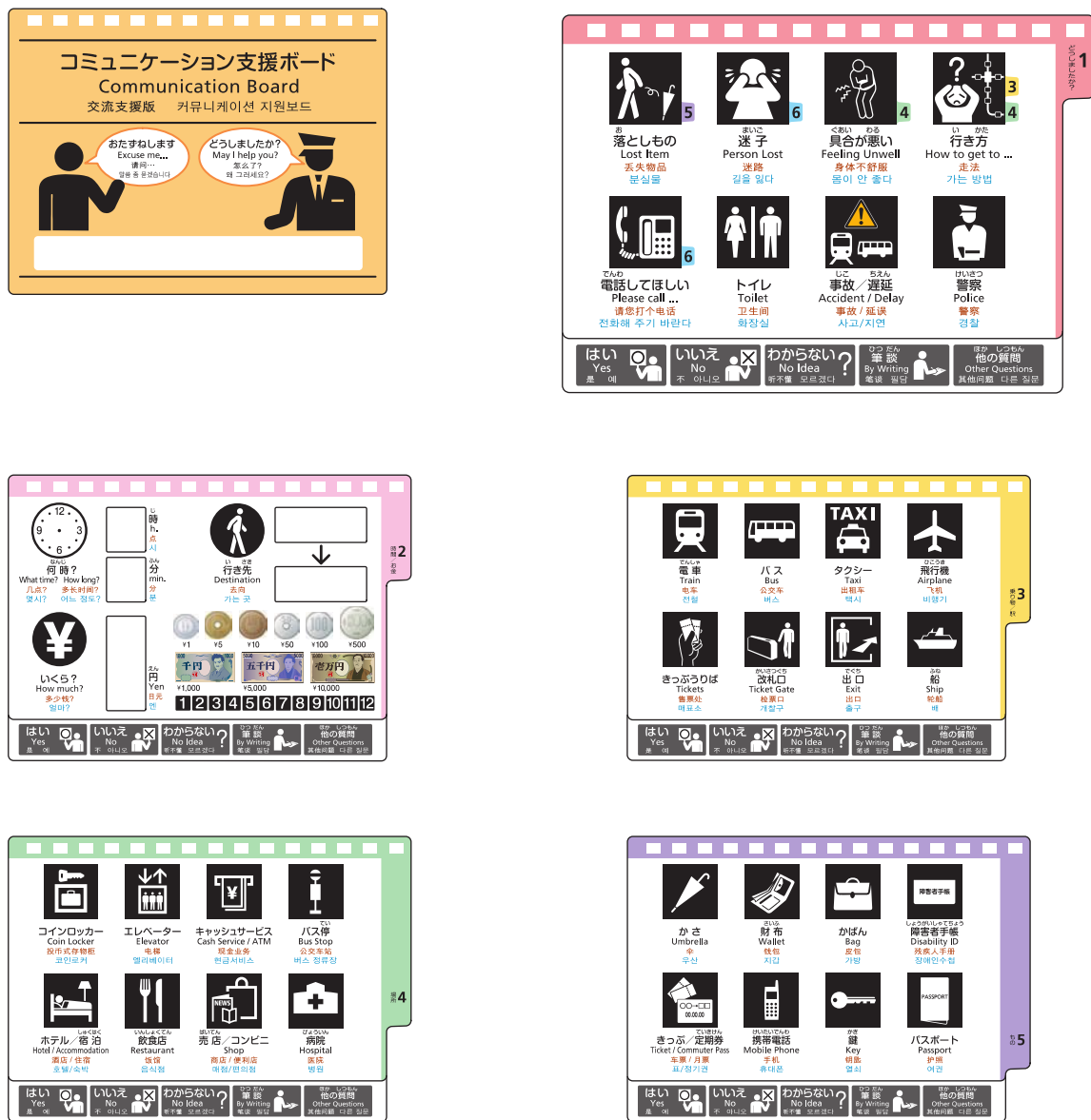


Figure C.1 — Examples of communication support boards in public transportation, Japan

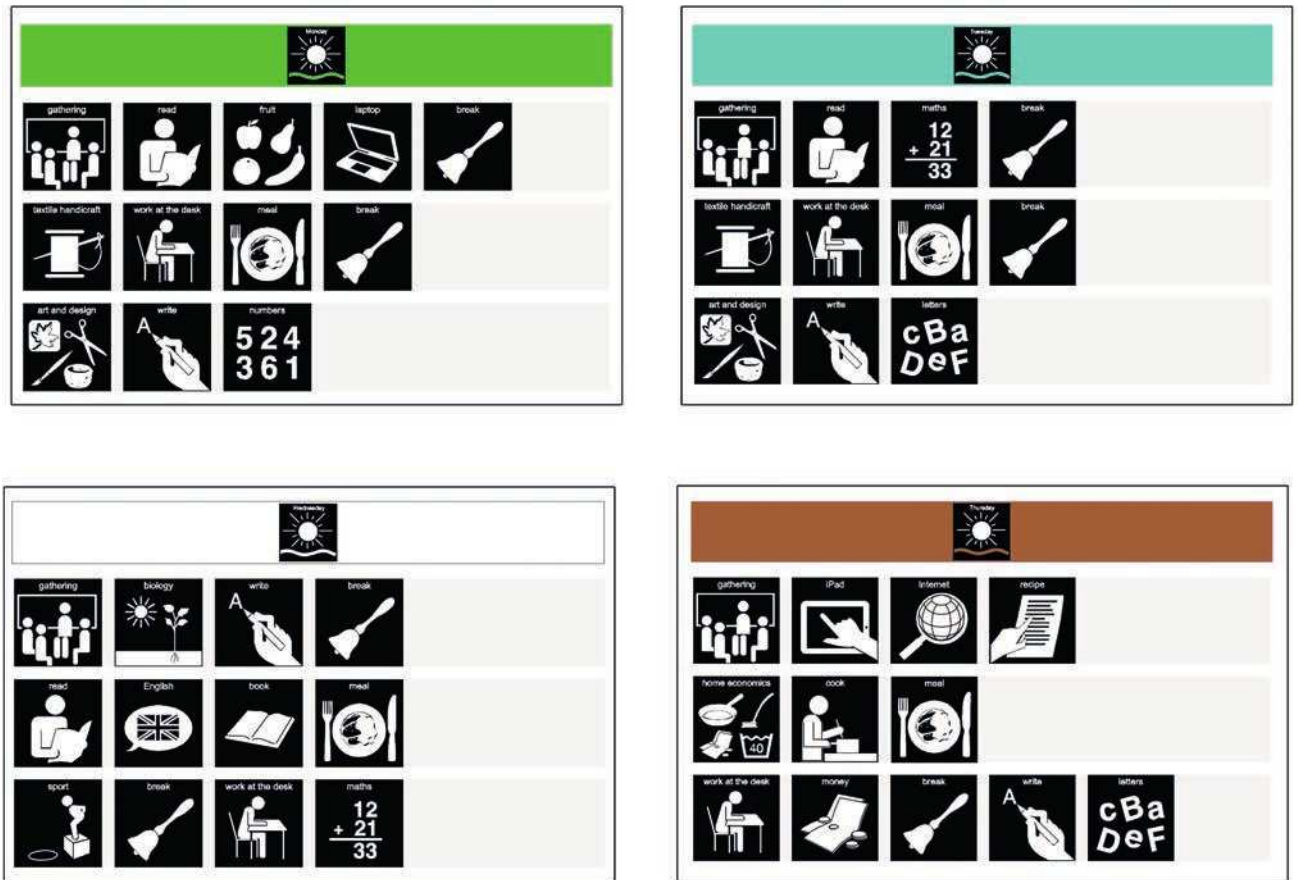





Figure C.2 — Examples of communication support boards, school schedule, Monday to Thursday, Sweden

コミュニケーション支援ボード Communication Board チェックインカウンター-1 T11T


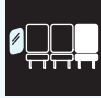


ご搭乗手続について、質問します。

Please answer following questions 我想问一些关于登机手续的问题 탑승수속에 대하여 질문을 합니다.

(1) パスポート、eチケット控え、マイレージカードはお持ちですか？ Do you have your passport, electronic ticket itinerary or mileage card?
 您带护照、电子客票、里程卡了吗？ 여권, 전자항공권 영수증, 마일리지 카드를 갖고 계십니까?

 パスポート・査証 Passport, Visa <small>护照 / 签证 여권/비자</small>	 eチケット控え Electronic Ticket Itinerary <small>电子客票行程单 전자항공권 영수증</small>	 マイレージカード Mileage Card <small>里程卡 마일리지카드</small>	 搭乗券 Boarding Pass <small>登机牌 탑승권</small>
--	--	---	--





(2) 座席のご希望はありますか？ Do you have any seating preference?
 请问您希望靠窗口还是靠通道的座位？ 좌석은 창쪽, 통로쪽의 희망은 있습니까?

 窓側 Window <small>靠窗口 창쪽</small>	 通路側 Aisle <small>靠过道 통로쪽</small>	 前方 Front <small>前面 앞쪽</small>	 後方 Back <small>后面 뒤쪽</small>
---	--	---	--



(3) 預ける手荷物はありますか？ Do you have any check in baggage?
 您有没有要托运的行李？ 맡기실 수하물이 있습니까?

お預け手荷物 Checked Baggage 托运行李 위탁수하물




はい Yes 是 예 **↓** 下記のものはお預かりできません。ご相談ください。
 The following items cannot be checked in.
 下列物品不能托运。请咨询。 아래의 물품은 맡기실 수 없습니다. 상담하여 주십시오.

<input type="checkbox"/> いいえ No 不 아니오	 貴重品 Valuables <small>贵重物品 귀중품</small>	 壊れやすいもの Fragile Items <small>易碎品 파손하기 쉬운 물건</small>	 危険物 Dangerous Objects <small>危险物品 위험물</small>	 喫煙用ライター・マッチ Lighter, Matches <small>吸烟用打火機/火柴 흡연용ライター 및 성냥</small>
---	--	--	---	---




機内持ち込みできません。ご相談ください。
 The following items cannot be carried in the cabin.
不能带上飞机。请咨询。 기내에 반입하실 수 없습니다. 상담하여 주십시오.

 刃物など Knives, Blades, etc. <small>刀具等 칼 등</small>	 液体物 Liquids <small>液体物品 액체류</small>
--	---

(4) 乗り継ぎはありますか？ Do you have a connecting flight?
 您需要转机吗？ 환승이 있습니까?

 乗り継ぎ Connecting Flights <small>转机 환승</small>	 搭乗口 Gate <small>登机口 탑승구</small>	 検査場 Security Check <small>安检处 검사장</small>
--	---	--

(5) 場所はわかりますか？ Airport Information 您知道在哪里吗？ 장소는 아십니까?

 搭乗口 Gate <small>登机口 탑승구</small>	 検査場 Security Check <small>安检处 검사장</small>	 ラウンジ Lounge <small>候机室 라운지</small>
---	--	--

わかりましたか？ Do you understand? 您懂了吗？ 이해 되셨습니까?

<input type="checkbox"/> はい Yes 是 예	<input type="checkbox"/> いいえ No 不 아니오	<input type="checkbox"/> わかりません I don't understand. <small>听不懂 모르겠습니다.</small>	<input type="checkbox"/> 筆談 In Writing 笔谈 <small>글자를 적어 대화</small>	<input type="checkbox"/> 他の質問 Other Questions 其他问题 <small>다른 질문</small>
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Figure C.3 — Examples of communication support boards at check-in counters of the airport, Japan



Figure C.7 — Example of communication support boards in digital media, Japan



Figure C.8 — Another example of communication support boards in digital media, Japan

Annex D (informative)

Classification 2 of communication support boards

This Annex provides design examples of communication support boards not using the principles of designing pictorial symbols presented in this International Standard.



Figure D.1 — Examples of communication support boards at public institutions, Japan

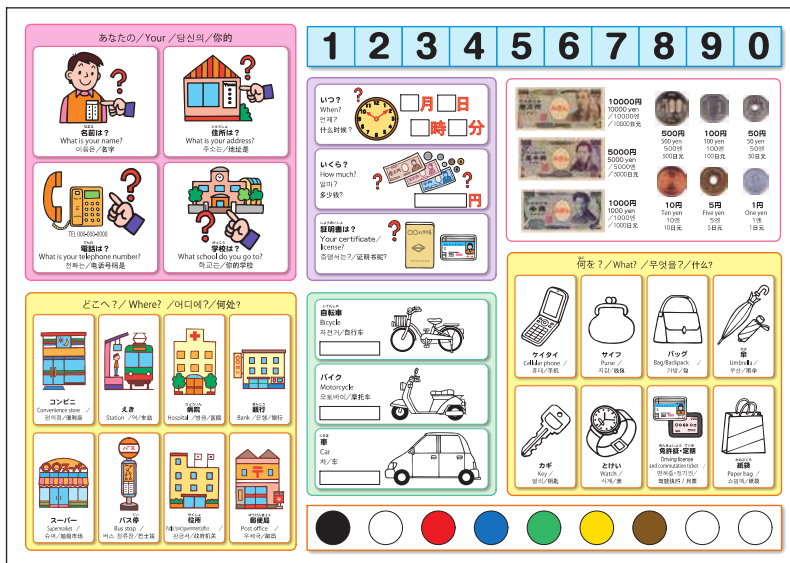


Figure D.2 — Examples of communication support boards at police stations and police boxes, Japan



Figure D.3 — Examples of communication support boards in Spanish hospitals

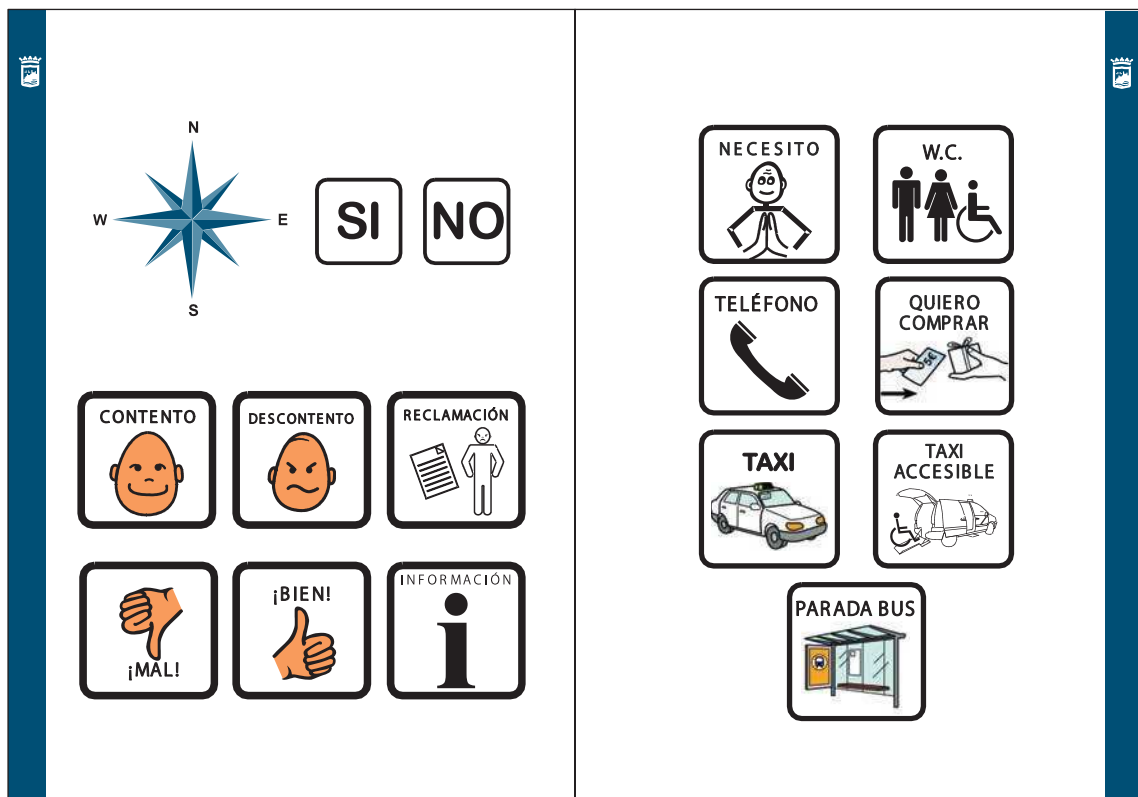


Figure D.4 — Examples of communication support board in Malaga (Spain)

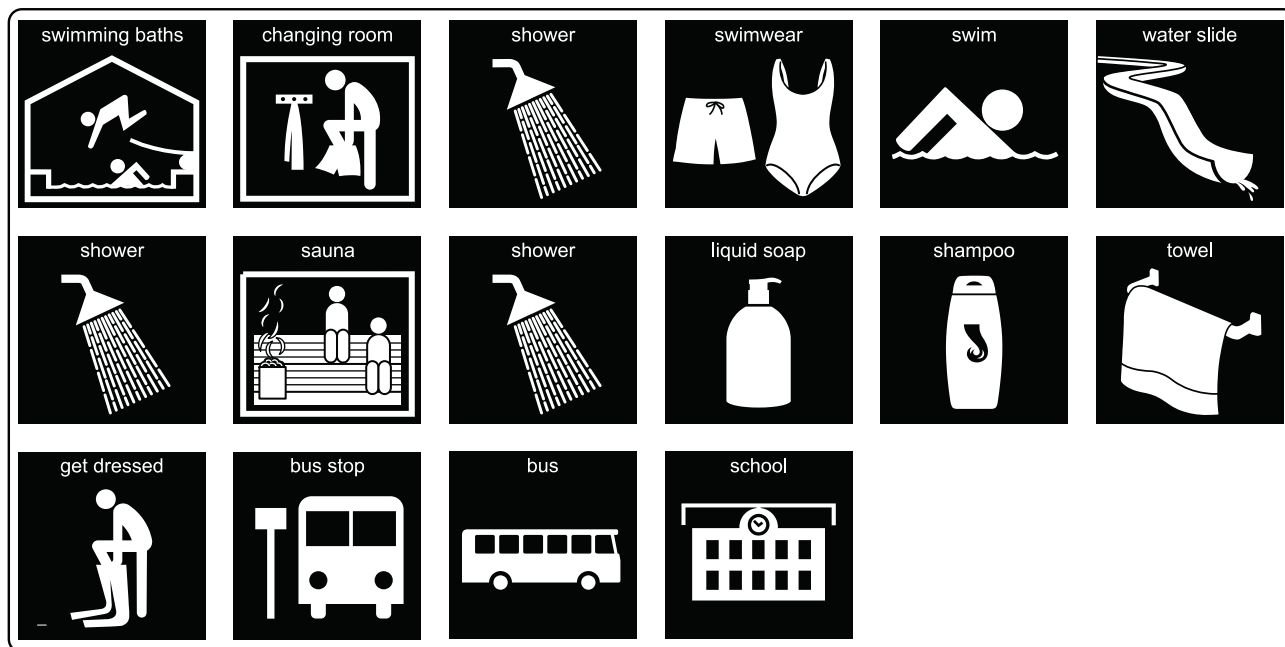


Figure D.5 — Example of communication support board for swimming, Sweden



Figure D.6 — Example of presentation of pictorial symbols, illustrations and photos on PDA

Annex E (informative)

Examples of typefaces

This Annex provides examples of sans serif typefaces that are easy to read.

**ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz
0123456789**

ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz
0123456789

コミュニケーション支援ボード 名前住所電話日月火水木金土 あいうえおかきくけこ

コミュニケーション支援ボード 名前住所電話日月火水木金土 あいうえおかきくけこ

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- [21] *Communication support board in police version*, source: Meiji Yasuda Mental Health Foundation, 2008
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