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RISK LITERACY PREDICTS AIRPLANE SAFETY BRIEFING CARD COMPREHENSION

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RISK LITERACY PREDICTS AIRPLANE SAFETY BRIEFING CARD COMPREHENSION

A THESIS APPROVED FOR THE

DEPARTMENT OF PSYCHOLOGY

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Abstract

Airplane safety briefing cards are a legally required method of communicating safety information to passengers, yet research suggests that comprehension of these materials remains below acceptable standards. This study sought to replicate and extend previous comprehension testing of airplane safety briefing cards to test whether there were individual differences beyond domain specific knowledge that could be used to predict who would be likely to misunderstand these safety communications. The results were clear; airplane safety briefing card comprehension remained below acceptable standards. Most importantly, risk literacy, as measured by statistical numeracy, was found to be a better predictor of comprehension than cabin safety knowledge, accounting for substantially more variance in comprehension scores. No other individual difference measure was a significant predictor of briefing card comprehension scores. To the extent these findings generalize, there are vulnerabilities in briefing card comprehension, and those vulnerabilities can be predicted and ameliorated.

Keywords: aviation safety, risk literacy, comprehension, individual differences

RISK LITERACY PREDICTS AIRPLANE SAFETY BRIEFING CARD COMPREHENSION

Introduction

> "The extent to which safety briefing cards enhance passenger action and survival in emergencies is directly related to the clarity and comprehension of the safety information provided…"
>
> (Corbett et al., 2008, p. 4).

Airplane safety briefing cards are intended to communicate critical safety information that can help protect passenger lives. For example, these cards supplement preflight oral briefings by providing a readily accessible reference for safety equipment locations, operating procedures, and high-stakes evacuation protocols *(Briefing Passenger Before Takeoff,* 1965). Regulatory guidance specifies that briefing cards should include only safety-relevant information and should rely primarily on pictorial representations to minimize language barriers (Federal Aviation Administration [FAA], 2024). Safety authorities have further emphasized that briefing cards should be comprehensible to all passengers, including those without prior aviation experience (National Transportation Safety Board [NTSB], 1985, 2000). Despite these guidelines, research suggests that many people misunderstand important aspects of briefing cards, which could present a serious threat to passenger safety (Corbett et al., 2008). This study investigates whether specific individual differences, such as risk literacy skills, predict the comprehension of airplane safety briefing cards better than specialized aviation safety experience.

Do People Understand Airplane Briefing Cards?

Concerns about the effectiveness of airplane safety briefing cards have persisted for decades. For example, in 1985, the National Transportation Safety Board conducted a landmark

study evaluating the effectiveness of various systems in place to communicate safety information to passengers, including the safety briefing cards. In their review of 46 briefing cards from multiple airlines covering multiple types of transport airplanes, the safety board found that safety cards varied greatly in content, presentation, and accuracy, with some failing to meet existing FAA minimums (NTSB, 1985). One of the conclusions of their investigation was that airplane safety briefing cards needed to be revised, emphasizing the need for further evaluation of briefing card comprehension.

In a follow-up study, the NTSB (2000) reviewed progress since their 1985 study. The new review included examinations of 22 briefing cards and interviews of passengers involved in 25 accidents. They found that utilization of essential information remained low, with 68% of interviewed passengers reporting that they did not read the card and 44% reporting they neither read the card nor listened to the oral briefing. The board also reviewed comprehension research that had taken place since their previous study. Ultimately, they concluded that many safety briefing cards still did not adequately communicate safety information to passengers, reiterating the earlier recommendations on the need for investigation and revisions (NTSB, 2000)[1].

The FAA subsequently conducted a large-scale evaluation of briefing card pictograms, assessing the comprehensibility of 41 cards. Findings from this work were disseminated in a technical report and two conference presentations: Corbett et al. (2008) reported results for seven existing standardized symbols and 15 briefing cards, while subsequent presentations reported results for the remaining cards and examined factors such as content, perspective, and differences between element-level and overall comprehension (Weed, 2013a, 2013b). Across studies,

[1] In addition to comprehension, the board recommended research into safety briefing materials ability to attract the attention of passengers, as well as how well passenger safety information is retained. While these are important, this effort is specifically focused on comprehension as a necessary component of imparting safety information.

comprehension of many pictograms fell below US and international standards for the comprehension of graphical safety communications, i.e., ANSI Z535 (85%) and ISO 9186 (69%). Importantly, these findings also provided evidence that higher comprehension was associated with greater aviation experience and higher levels of domain-specific knowledge (e.g., flight professionals and airplane safety experts had better comprehension). These results suggested that many briefing card designs were unlikely to adequately support comprehension among naïve passengers. Results also emphasized the potential importance of user characteristics in shaping understanding,[2] which raises a critical gap: it remains unclear whether general individual differences, rather than specialized aviation knowledge, drive effective safety communication.

Could General Skills Promote Briefing Card Comprehension?

Risk literacy refers to the ability to evaluate and understand information about risk. A large body of research indicates that skills associated with risk literacy are among the strongest general predictors of both risk comprehension and decision quality, often exceeding the predictive power of general cognitive abilities such as fluid intelligence or working memory (Cokely et al., 2012, 2018; Feltz & Cokely, 2024; Garcia-Retamero & Cokely, 2013, 2017; Garcia-Retamero et al., 2019). Among several component skills, statistical numeracy—defined as the ability to reason about probabilities and uncertainty—has emerged as the most influential

[2] Comprehension of graphically communicated information about safety equipment also affects its proper use. Corbett et al. (2014) found that there were significant differences in aviation life preserver donning times based on the type and amount of instructions that participants received before donning trials, via briefings and briefing card excerpts, and during trials, via instructions printed on the life preservers. Similarly, Abulhassan et al. (2018) found that proper donning of smoke hoods was dependent on being able to understand the pictogram instructions printed on them. Other FAA research indicates that some individual differences account for more variance in the outcomes of airplane evacuation research than the changes in airplane cabin layout (McLean & Corbett, 2004; McLean et al., 2002). Similar findings were reported during research of safety equipment usability where participant age and flight history accounted for more variance in life preserver donning time than the amount and type of instructions the participant received before or during the trials (Corbett et al., 2014).

or dominant risk literacy skill, as measured by the Berlin Numeracy Test, which asks questions such as:

> In a forest 20% of mushrooms are red, 50% brown and 30% white. A red mushroom is poisonous with a probability of 20%. A mushroom that is not red is poisonous with a probability of 5%. What is the probability that a poisonous mushroom in the forest is red?

Individual differences in people's ability to answer numeracy questions such as these have been shown to predict performance across hundreds of studies on diverse risk-related topics, including health decision making, natural hazard responses, and information acquisition (Allan et al., 2017; Garcia-Retamero & Cokely, 2013; Petrova et al., 2015, 2017; Perrin et al., 2025; Cho et al., 2024). Research suggests key decision benefits may typically emerge because numerate people tend to engage in more elaborative information processing, considering a broader range of relevant factors which are integrated into personally meaningful narratives and mental representations that promote greater metacognitive insight (e.g., numerate people are better at assessing and addressing the risk that their own understanding is biased; see Skilled Decision Theory; Cokely et al., 2018, in press; Cokely & Kelley, 2009; Ghazal et al., 2014).

In addition to numeracy, graph literacy—the ability to interpret and use information presented in graphical formats—has also been identified as a related but distinct contributor to risk literacy, often with considerable unique predictive power. Because airplane safety briefing cards rely heavily on pictorial and diagrammatic representations, graph literacy may be particularly relevant for understanding information on the cards. For example, a large body of prior research indicates that graph literacy predicts the extent to which individuals benefit from well-designed (transparent) visual aids that promote accurate interpretation of graphically

presented information among people who vary widely in abilities, beliefs, and backgrounds (Galesic & Garcia-Retamero, 2011, 2013; Okan et al., 2012; Durand et al., 2020).

Of note, numeracy, graph literacy and other risk literacy skills have been found to be trainable skills that do not generally require high levels of intelligence or exceptional cognitive capacities (see Skilled Decision Theory; Cokely et al., 2018). For example, training interventions have demonstrated improvements in general decision-making quality across individuals with varying cognitive abilities (Cho, 2024). Given these findings, it seems possible that risk literacy skills may be robust predictors of comprehension and thus could help identify vulnerable populations and inform design improvements and targeted interventions related to safety briefing cards.

Does Risk Literacy Predict Briefing Card Comprehension?

Although concerns about low comprehension of briefing cards are well documented (NTSB, 1985, 2000), prior research has focused primarily on design characteristics and expert–novice differences. To date, there do not appear to be any published studies directly examining the relationship between risk literacy skills and performance on standardized briefing card comprehension assessments. The present study addresses this gap by replicating prior FAA comprehension findings while systematically evaluating the role of potentially relevant individual differences.

Method

This study was designed in two parts. The first was a replication of the FAA's research on the comprehension of airplane safety briefing cards, following the comprehension testing and scoring criteria established in that work (Corbett et al., 2008; Weed 2013a, 2013b). The second was an extension testing whether individual differences in numeracy predicted airplane briefing

card comprehension independent of other individual difference factors such as personality, relevant experiences, knowledge, or demographics. This study was reviewed and approved by the University of Oklahoma Institutional Review Board (IRB# 18355).

Participants

Seventy-three participants were recruited from undergraduate students at the University of Oklahoma through the SONA research participation system. Participants received partial course credit in exchange for their participation. Prior to participation, participants were informed that they would be taking part in a study about interpreting visual communications and that their participation could take upwards of two hours. Three participants indicated upon completion of the study that they did not wish their data to be included in analyses, resulting in a final analyzed sample of 70 participants.

Measures

Measuring Risk Literacy

Statistical Numeracy. To measure statistical numeracy, participants answered questions from the four-item Berlin Numeracy Test (Cokely et al., 2012), which was developed for the measurement of statistical numeracy amongst highly educated samples. The four-item BNT was combined with the three-item numeracy Schwartz Numeracy Test for measuring literacy in less educated samples (Schwartz et al., 1997). Combined, these measures are referred to as the BNT-S and this combination has been used as a best practice recommendation for a wider range of numeracy assessment than the component tests (Perrin et al., 2025). Items in the BNT-S were scored as correct or incorrect (1/0) and summed to provide a participant numeracy score ranging from 0 to 7.

Graph Literacy. To measure graph literacy, participants answered the 13-item GLS (Galesic & Garcia-Retamero, 2011). Responses to the GLS were scored as correct or incorrect (1/0) and summed to provide a participant graph literacy score ranging from 0 to 13.

Measuring Personality

Personality was assessed using the Ten Item Personality Inventory (TIPI; Gosling et al., 2003), which measures the Big Five traits: extraversion, agreeableness, conscientiousness, emotional stability, and openness to experience. Personality traits have been shown to predict outcomes in decision making, training, and education settings.[3] Conscientiousness and emotional stability may be small but significant predictors of briefing card comprehension. Other traits may relate more specifically to briefing card exposure and engagement; extraversion may correlate with flight history and prior exposure to cabin safety information, openness to experience could reflect greater attentiveness to novel information like safety briefings, and agreeableness may correlate with willingness to engage with briefing cards.

Measuring Cabin Safety Experience

Previous airplane cabin safety knowledge was measured following Corbett et al. (2008) by asking participants if they had previous experience as an airline flight attendant (high/low cabin safety expertise) and recent flight history (number of flights they had been on in the last two years).

[3] Personality traits have been found to predict academic achievement, aviation training outcomes, and decision making quality across multiple studies. Mammadov (2022) conducted a meta-analysis of 228 studies finding that conscientiousness and neuroticism were strong predictors of academic success, independent of cognitive ability. In aviation specifically, Breuer et al. (2023) found that conscientiousness and neuroticism predicted successful completion of pilot training across 25 studies, and King et al. (2003) found small but measurable correlations between these traits and air traffic controller training outcomes. Feltz and Cokely (2024) further argued that personality traits represent a meaningful and underappreciated source of decision vulnerability alongside numeracy, with practical implications for risk communication and informed decision making.

Measuring Cabin Safety Knowledge

A new nine-item multiple choice questionnaire was developed by an airplane cabin safety subject matter expert and was included to measure participants' practical application of cabin safety information. Responses to the cabin safety information questionnaire were scored correct/incorrect (1/0) and summed for a participant cabin safety knowledge score ranging from 0 to 9. The Cabin Safety Knowledge measure is presented in Appendix A.

Measuring Safety Symbol Comprehension

Following the format of Corbett et al. (2008), seven ANSI Z535 graphical safety symbols were included in this study as a measure of general safety symbol comprehension. Safety symbol comprehension was scored based on the same rankings as established in Corbett et al. (2008, p. 7. See Table 1).

Table 1

Comprehension Scoring Criteria

Identifier	Category	Weight	Criteria
7	Certain	1.00	Response was correct and complete.
6	Likely	0.75	Response was mostly correct but missing a key element(s).
5	Arguable	0.50	Response contained elements that indicated partial correctness but were ambiguous or unclear.
4	Suspect	0.25	Response contained words or ideas that were related but misconstrued.
3	Wrong	0.00	Response was wrong.
2	Opposite	-1.00	Response contained words or ideas that were related but contradictory to the correct response.
1	None	0.00	Response was some form of "don't know" or random letters.

Note: This adaptation does not include the category (0) – Blank, Response was blank, as the participants were given reminders by the survey software to "Please ensure you fill out all fields before proceeding".

Comprehension criteria and exemplar answers were taken from the FAA reports and used for the evaluation of the participant responses in this project. Comprehension scores for each question were derived by taking the frequency of each response category, dividing by the number of participants to get the percentage of total responses for each category, multiplying those percentages by the category weights reported in Table 1, and summed to obtain the comprehension score for each question. For those symbols that had only one associated question (1 of 7) the item score was the overall comprehension score. For those items that contained multiple questions per symbol, the individual question comprehension scores were averaged to obtain the overall safety symbol comprehension score for individual comparison, following previous research. To facilitate the current research, individual safety symbol comprehension composite scores were calculated for each participant by summing the weights of each of the individual's responses to all the safety symbol comprehension questions (possible ranges -8 (all opposite) to 8 (all certain)).

Measuring Briefing Card Comprehension

Briefing card comprehension was measured by extracting the 41 briefing card graphics and questionnaires reported in the previous research (Corbett et al., 2008; Weed 2013a, 2013b). Briefing card comprehension answers were scored based on the same rankings as established in Corbett et al. (2008, p. 7. See Table 1), with comprehension criteria and exemplar answers taken from the FAA reports. Comprehension scores for each question were derived following the same procedure described in the Measuring Safety Symbol Comprehension section above. For the 17 briefing card excerpts containing only a single question, the score served as the overall comprehension score. For excerpts containing multiple questions, individual question scores

were averaged to obtain the overall briefing card comprehension score for comparison to previous research.

In a departure from the original research, in which participants were given one of several 20-page test booklets containing a limited selection of briefing card excerpts, participants in this study were presented with all 41 briefing card graphics and related questions in a randomized order via computer. To facilitate the individual differences analyses, a briefing card comprehension composite score was calculated for each participant by summing the weighted scores of their responses across all briefing card comprehension questions, with possible scores ranging from -88 (all opposite responses) to 88 (all certain responses).

Data Collection and Analysis

Data were collected using an online survey created and administered via Qualtrics, with participants completing the study in the Risk Literacy laboratory at the University of Oklahoma. Initial scoring of the individual difference measures and categorization and scoring of the open-ended comprehension responses were conducted using Microsoft Excel. Statistical analyses were conducted using SPSS® version 31 and R version 4.5.1.

Procedure

Participants arrived at the testing location and were asked to read and acknowledge the informed consent before they were invited to progress through the study. After consenting to participant in the study, participants were presented with the BNT-S items, followed by the GLS items and the TIPI. Next, participants answered the general safety symbol comprehension questions, which were presented in a random order. Participants then viewed and answered airplane safety information card comprehension questions, also taken from Corbett et al. (2008). After completing the safety information card comprehension section, participants answered the

nine-item cabin safety knowledge questionnaire. Participants next provided their demographic information, answered if they were or had been a flight attendant, and how many flights they had been on in the last two years. Finally, following a standard lab procedure, participants were asked if they consented to the use of their data in analyses before being debriefed, thanked and dismissed.

Results

Demographics

Of the 70 participants whose responses were analyzed, the majority (71.4%, $n = 50$) identified as female, and the remaining 28.6% ($n = 20$) identified as male. One participant (1.4%) reported their age as between 25-34 years old, while the remaining 69 participants (98.6%) reported their age range to be between 18 and 24 years old. Reported completed education levels ranged from high school or equivalent to 4-year degree (Table 2). Participants indicated that their primary language spoken at home was English (91.4%, n = 64), Spanish (5.7%, n = 4), Burmese (1.4%, n = 1), and Urdu (1.4%, n = 1). Time taken to complete the entire survey ranged from a minimum of 1889 seconds (31:29) to a maximum of 6739 seconds (1:52:19) with a mean time of 3796 seconds (1:03:16), and a standard deviation of 1089 seconds (18:09 minutes).

Table 2

Participant Education Completed Categories

Education	Frequency	Percent
High School Diploma	22	31.4
Some College	45	64.2
Associates	2	2.8
Bachelors	1	1.4
Total	**70**	**100**

No participants indicated that they were currently or had previously worked as a flight attendant. Responses to the question of how many flights the participants had been on in the last two years ranged from 0 to 30 (M = 6.6, SD = 6.3, Table 3).

Table 3

Participant Flight History Categories

Number of Flights in the Previous 2 Years	Frequency	Percent
None	9	12.9
1 to 5	30	42.9
6 to 10	20	28.6
11 to 15	6	8.6
16+	5	7.1
Total	**70**	**100**

Results A: Did Briefing Card Comprehension Replicate Previous Findings?

Results of the safety symbol comprehension replication are presented in Table 4. Overall results of the airplane briefing card comprehension replication are presented in Table 5. Details of each standardized safety symbol, airplane briefing card excerpt, individual questions asked, comprehension criteria, and comprehension tables are provided in Appendix B.

Table 4

Safety Symbol Comprehension Overall Results

Pictographic Element	Element ID	Comprehension Score (SD)
Restrooms for Men and Women	STDS1	79.3 (23)
Fire Extinguisher	STDS2	82.9 (34)
Stop	STDS3	98.6 (07)
Do Not Enter	STDS4	36.1 (41)
Biohazard	STDS5	61.4 (31)
Warning/Safety Alert	STDS6	63.9 (33)
Prohibited	STDS7	90.7 (18)

Table 5

Briefing Card Comprehension Overall Results

Pictographic Element	Card ID	Individual Question Scores (SD)	Comprehension Score
Seat Belt Usage	B1	80.4(47) / - / - / - / - / - / -	80.4
Brace Position	BP1	78.9(32) / 61.1(36) / - / - / - / - / -	70.0
Brace Position	BP2	82.1(26) / 62.1(39) / - / - / - / - / -	72.1
Brace Position	BP3	79.3(34) / 57.5(32) / - / - / - / - / -	68.4
Brace Position	BP4	75.0(34) / 17.9(17) / - / - / - / - / -	46.4
Flotation Device Usage	FD1	66.1(37) / 55.4(46) / - / - / - / - / -	60.7
Flotation Device Usage	FD2	51.4(43) / 75(32) / 29.6(28) / - / - / - / -	52.0
Flotation Device Usage	FD3	55.0(44) / 46.1(47) / -12.9(69) / - / - / - / -	29.4
Flotation Device - Child	FDC1	48.2(50) / 68.9(39) / - / - / - / - / -	58.6
Floor Exit Lights	FL1	71.1(31) / - / - / - / - / - / -	71.1
Floor Exit Lights	FL2	86.1(34) / 46.4(48) / - / - / - / - / -	66.3
Floor Level Exits	FLEX1	50.0(44) / 75.7(30) / - / - / - / - / -	62.9
Floor Level Exits	FLEX2	52.5(38) / - / - / - / - / - / -	52.5
Floor Level Exits	FLEX3	73.2(31) / - / - / - / - / - / -	73.2
Floor Level Exits	FLEX4	87.1(32) / 65.7(28) / - / - / - / - / -	76.4
Floor Level Exits	FLEX5	35.7(27) / 61.1(26) / 68.6(53) / - / - / - / -	55.1
Floor Level Exits	FLEX6	21.1(39) / 71.1(37) / 66.1(33) / 58.9(40) / 67.9(28) / 90.4(25) / 56.1(67)	61.6
No Smoking in Lavatory	L1	100.0(0) / 30.7(36) / 79.3(42) / - / - / - / -	70.0
No Smoking in Lavatory	L2	66.4(38) / - / - / - / - / - / -	66.4
No Smoking in Lavatory	L3	97.1(17) / - / - / - / - / - / -	97.1
No Smoking in Lavatory	L4	98.2(6) / 50.7(36) / - / - / - / - / -	74.5
Oxygen Equipment Usage	O1	31.4(47) / - / - / - / - / - / -	31.4
Oxygen Equipment Usage	O2	47.9(46) / 45.4(40) / - / - / - / - / -	46.6
Oxygen Equipment Usage	O3	51.1(31) / 61.8(31) / - / - / - / - / -	56.4
Overhead Bin Safety	OB1	76.8(30) / - / - / - / - / - / -	76.8

Pictographic Element	Card ID	Individual Question Scores (SD)	Comprehension Score
Over Wing Exits	OWEX1	52.9(42) / 77.9(25) / - / - / - / - / -	65.4
Over Wing Exits	OWEX2	38.9(44) / - / - / - / - / - / -	38.9
Over Wing Exits	OWEX3	39.3(41) / 29.3(41) / 59.6(38) / 72.2(31) / 46.1(44) / 74.6(53) / 62.9(43)	54.9
Over Wing Exits	OWEX4	41.8(38) / 37.9(41) / - / - / - / - / -	39.8
Over Wing Exits	OWEX5	60.6(32) / 86.4(24) / 52.5(68) / 72.9(25) / 77.1(31) / - / -	69.9
Over Wing Exits	OWEX6	49.6(26) / 88.9(18) / 82.9(26) / 73.9(27) / 78.9(30) / - / -	74.9
Turbulence/Seat Belt	T1	85.7(24) / - / - / - / - / - / -	85.7
Take off and Landing	TLS1	86.8(29) / - / - / - / - / - / -	86.8
Take off and Landing	TLS2	55.4(44) / - / - / - / - / - / -	55.4
Take off and Landing	TLS3	67.1(35) / - / - / - / - / - / -	67.1
Warning	W1	30.7(55) / - / - / - / - / - / -	30.7
Warning	W2	35.7(30) / - / - / - / - / - / -	35.7
Water Evacuation	WE1	41.8(43) / - / - / - / - / - / -	41.8
Water Evacuation	WE2	84.6(31) / 38.2(38) / 40.7(52) / 12.9(65) / 2.5(57) / - / -	35.8
Water Evacuation	WE3	47.9(37) / 22.5(68) / - / - / - / - / -	35.2
Water Evacuation	WE4	48.2(71) / - / - / - / - / - / -	48.2

Study to Study Comparison: Safety Symbol Comprehension.

Comparison of the safety symbol comprehension scores obtained from the previous work described in Corbett et al. (2008), and the current study are detailed in Table 6.

Table 6

Comparison of Safety Symbol Comprehension Scores

	Comprehension Scores		
Element ID	**Previous Study**	**Current Study**	**Delta**
STDS1	93.0	79.3	-13.7
STDS2	97.6	82.9	-14.7
STDS3	95.2	98.6	3.4
STDS4	40.5	36.1	-4.4
STDS5	58.7	61.4	2.7
STDS6	54.3	63.9	9.6
STDS7	91.8	90.7	-1.1
Average	75.9	73.3	-2.6

Compared to the original dataset, the biggest differences were observed in the comprehension of the safety symbols communicating the location of a fire extinguisher and restrooms for men and women. Comprehension scores were reduced for the “Restrooms for Men and Women/Unisex Restrooms” (STDS1) symbol mostly because the respondents failed to identify that this was referencing a restroom. Examination of the responses for the fire extinguisher symbol (STDS2) showed that majority of answers that scored below the Certain category (categories 4, 5, and 6, see Table 1) were identifying this as a symbol representing a fire hydrant, rather than a fire extinguisher. The wrong answers were those identifying this as a symbol for location of a fire. Overall, the average difference in safety symbol comprehension appeared trivial to modest between the two samples.

Study to Study Comparison: Corbett et al. (2008) to Current Study

Comparison of the airplane briefing card comprehension scores obtained from the previous work described in Corbett et al. (2008), and the current study are detailed in Table 7.

Table 7

Comparison of Briefing Card Comprehension Scores Set 1

	Average Comprehension Scores		
Card ID	**Previous Study**	**Current Study**	**Delta**
B1	85.1	80.4	-4.7
BP3	68.6	68.4	-0.2
FD2	48.5	52.0	3.6
FDC1	51.5	58.6	7.1
FL2	75.7	66.3	-9.4
FLEX2	57.7	52.5	-5.2
L3	81.0	97.1	16.1
L4	78.7	74.5	-4.2
O1	56.0	31.4	-24.6
O2	62.3	46.6	-15.6
OB1	73.7	76.8	3.1
OWEX1	70.1	65.4	-4.7
T1	78.5	85.7	7.2
W1	37.1	30.7	-6.4
WE3	66.1	35.2	-30.9
Average	66.0	61.4	-4.6

Note: Average comprehension scores were not originally reported in Corbett et al. (2008). For comparison they were calculated from the average of the individual question comprehension scores reported on p. 9 of that report.

There was a wider range of comprehension scores obtained from the responses for the briefing card excerpts than there were for the safety symbols. The following discussion focuses on items showing differences greater than 10 points between the two datasets, as these represent the most notable departures from the previous findings.

The largest decrease in overall comprehension score (-30.9) was observed in Water Evacuation 3 (WE3), which appeared to result from the large number of opposite responses to question WE3B, where the respondents indicated that the action the briefing card was communicating was “to connect or tether the life raft to the airplane”, rather than to “cut the connection between the raft and airplane”. The largest decline in comprehension scores was on the two oxygen systems questions (O1, O2), which may be explained by a lack of understanding of the purpose of the passenger oxygen systems on an airplane, for O1, and a question possibly biased towards airplane cabin safety experts (“O2B: Why do you think this is important?”). The largest increase (+16.1) occurred for the multiple-choice question asking about when smoking was allowed on an airplane (L3). Overall, the average difference in briefing card comprehension scores between the two samples was modest at -4.6 points.

Study to Study Comparison: Weed (2013a) to Current Study

Comparison of the airplane briefing card comprehension scores obtained from the previous work described in Weed (2013a) and the current study are detailed in Table 8.

Table 8

Comparison of Briefing Card Comprehension Scores Set 2

	Average Comprehension Score		
Card ID	**Previous Study**	**Current Study**	**Delta**
FD1	59.77	60.7	0.9
FD3	42.95	29.4	-13.5
FLEX1	60.15	62.9	2.7
FLEX3	55.24	73.2	18.0
FLEX4	67.43	76.4	9.0
FLEX5	63.59	55.1	-8.5
FLEX6	54.72	61.6	6.9
L1	70.29	70.0	-0.3
L2	80.43	66.4	-14.0
O3	58.15	56.4	-1.7
TLS1	55.46	86.8	31.3
TLS2	55.19	55.4	0.2
TLS3	55.28	67.1	11.9
Average	59.90	63.19	3.30

Note: Average comprehension scores were not originally reported in Weed, 2013a. For comparison they were calculated from the average of the individual question comprehension scores reported on slide 16 of that presentation.

Similar to the previous examination, the following discussion focuses on items showing differences greater than 10 points between the two datasets. The largest difference observed in this subset of the comprehension data was an increase in comprehension scores for takeoff and landing symbology (TLS1, +31.3). Other increases observed included the meaning of symbols instructing passengers to jump onto a slide, not to sit and slide (FLEX3, +18.0), and what not to do during takeoff and landing (TLS3, +11.9). Decreases were seen in questions asking what a possibly unfamiliar combination of symbols mean (L2: smoking will set off alarm, -14.0) and one of the briefing card questions asking about flotation devices composites (FD3, -13.5).

Specifically, when looking at individual questions, the participants in the current sample gave the opposite answer to the question "where are they (the figures in the pictogram) performing these actions?" (FD3C, Delta -37.6). Like findings in the previous comparison, this could be indicative of a question that would be better suited for those with airplane cabin safety expertise. Overall, the average difference in briefing card comprehension scores between the two samples was modest at +3.30 points.

Study to Study Comparison: Weed (2013b) to Current Study

Comparison of the airplane briefing card comprehension scores obtained from the previous work described in Weed, 2013b, and the current study are detailed in Table 9.

Table 9

Comparison of Briefing Card Comprehension Scores Set 3

	Average Comprehension Score		
Card ID	**Previous Study**	**Current Study**	**Delta**
BP1	57.29	70.0	12.7
BP2	48.56	72.1	23.6
BP4	66.74	46.4	-20.3
FL1	58.12	71.1	13.0
OWEX2	57.21	38.9	-18.3
OWEX3	51.49	54.9	3.4
OWEX4	37.57	39.8	2.3
OWEX5	74.28	69.9	-4.4
OWEX6	78.39	74.9	-3.5
W2	18.13	35.7	17.6
WE1	50.58	41.8	-8.8
WE2	51.91	35.8	-16.1
WE4	69.92	48.2	-21.7
Average	55.40	53.81	-1.59

Note: Average comprehension scores were not originally reported in Weed (2013b). For comparison they were calculated from the average of the individual question comprehension scores reported on slide 14 of that presentation.

This subset of the data showed the most items with differences in average comprehension scores greater than 10 points. The following discussion focuses on those items, with an exception in the discussion of the water evacuation excerpts (WE1, WE2, WE4).

Increases were seen in comprehension of two brace position cards (BP2, +23.6; BP1, +12.7), the warning question (W2, +17.6), and the floor exit lights question (FL1, +13.0). Decreases in comprehension were seen in water evacuation questions (WE4, -21.7; WE2, -16.1; WE1, -8.8), one of the brace position cards (BP4, -20.3), and one of the overwing exit cards (OWEX2, -18.3). The differences in the brace position card comprehension scores, both between the cards in this dataset, as well as between the two different datasets, may be attributed to the difference in how the second question was worded on one of the cards. The first question of each ("Fully describe what you think these people are doing") had higher comprehension scores in this dataset compared to the previous (BP1A, +17.6; BP2A, +23.0; BP4, +17.7). The second question was different between the one with the lowest score (BP4B, -58.4) asking "Why are they doing it?", compared to the other two (BP1B, +7.8; BP2B +24.2) asking "Why do you think they are doing different things?".

The difference in comprehension scores for W2 may be an example of a poor question for briefing card comprehension, particularly given the current sample of undergraduate university students, who may be more likely to provide longer answers that also compare and contrast questions, which increase the odds of eventually encompassing the desired answer. Similarly, the floor exit lighting question (FL1) received more complete answers than appears to have been the case in the previous research, with a much lower proportion of the respondents in this dataset

giving answers that fell into the arguable category (12.86%) than previously reported (i.e., 50.13%; see Weed, 2013b).

The low comprehension score for the overwing exit briefing card excerpt (OWEX2) seems to have stemmed from the participants answering the question in isolation, without referencing the rest of the briefing card. The majority of wrong responses indicated that the pictographic element indicated in the question was indicating that users should pull something to open the door, when the first element in the briefing card excerpt had already shown the door being opened (see Appendix B for reference). Finally, the comprehension scores for the water evacuation questions (WE1, WE2, WE4) were lower in the present sample. The largest difference, found in WE4, was due to a large number of opposite responses, indicating that the participants responded that the exit should be opened if the operator detected fire, smoke, or debris outside the airplane rather than indicating that it should stay closed (i.e., the correct answer). The next largest difference (WE2) was due to many opposite answers on two of the questions for that briefing card excerpt (WE2D, WE2E) in which participants responded that the briefing card was instructing them to tether and stay close to the airplane, rather than to cut the tether and push away from the airplane (i.e., the correct answer).

Integrated results based on all available briefing cards

Across the three comparison sets, average differences in comprehension scores were small, ranging from -4.6 points when compared to Corbett et al. (2008) to +3.3 points when compared to Weed (2013a), with the Weed (2013b) comparison falling between these at -1.59 points. Of the 41 briefing card items, 17 showed differences greater than 10 points, with increases and decreases occurring in roughly equal numbers, suggesting that divergence was not systematically in one direction (e.g., as consistent with randomly distributed error). Notably, the

briefing cards showing the largest differences were not randomly distributed across categories but were concentrated in procedural categories involving sequential, safety-critical actions; specifically, water evacuation (3 of 4 cards), oxygen equipment usage (2 of 3 cards), brace positions (3 of 4 cards), and takeoff and landing procedures (2 of 3 cards). Many of these items involved either multi-step procedures requiring domain-specific knowledge or questions that appear better suited to participants with prior cabin safety expertise. Simpler symbolic items, such as smoking prohibitions and seat belt usage, tended to be more stable across samples. Overall, the results suggest that the current findings provide a reasonable and relatively close replication, roughly approximating the distributional characteristics observed in prior studies more than a decade later. The current findings are consistent with the notion that this method may generally provide a stable and reliable measure of airplane safety briefing card comprehension. These findings also suggest that while the overall measure is stable, some specific procedural categories may be more sensitive to differences in sample composition (e.g., depending on the experience of the participant).

Results B: Are there individual differences in briefing card comprehension?

Rather than being solely a test of the performance of airplane briefing cards, this project was intended to test and model the individual differences of participants and how they may be related to briefing card comprehension. An initial correlational analysis was performed including individual briefing card comprehension composite scores, statistical numeracy, graph literacy, personality measures, individual safety symbol comprehension composite scores, cabin safety knowledge scores, participant gender, and flight history. Descriptive statistics and the results of this correlational analysis are presented in Table 10.

Table 10

Overall Correlation Table

Variable	*n*	*M*	SD	1	2	3	4	5	6	7	8	9	10	11
1. Individual Briefing Card Comp.	70	51.55	12.29	--										
2. Statistical Numeracy	70	3	1.61	0.60**	--									
3. Graph Literacy	70	10.57	1.52	0.37**	0.49**	--								
4. Extraversion	70	4.54	1.63	-0.11	-0.21	-0.05	--							
5. Agreeableness	70	4.78	1.3	0.26*	0.14	0.04	-0.19	--						
6. Conscientiousness	70	5.41	1.18	-0.05	-0.01	-0.01	0.00	-0.10	--					
7. Emotional Stability	70	4	1.29	0.22	0.23	0.17	-0.04	0.27*	0.13	--				
8. Openness to Experience	70	5.26	1.12	-0.02	-0.12	-0.07	0.37**	0.07	0.00	0.04	--			
9. Individual Safety Symbol Comp.	70	6.12	0.81	0.30*	0.25*	0.34**	0.04	-0.09	-0.02	0.19	-0.09	--		
10. Cabin Safety Knowledge	70	7.4	1.17	0.40**	0.24*	0.11	0.14	0.32**	-0.13	0.17	-0.04	0.03	--	
11. Gender	70	1.71	0.46	-0.25*	-0.26*	-0.20'	0.30*	-0.06	0.12	-0.25*	0.18	-0.18	-0.08	--
12. Flight History	70	6.56	6.25	-0.02	-0.01	0.00	0.25*	-0.35**	-0.03	0.16	0.00	0.22	0.05	0.12

Note: * indicates significance at the 0.05 level. ** indicates significance at the 0.01 level.

Did individual differences predict briefing card comprehension?

A stepwise multiple regression analysis was conducted with individual briefing card comprehension composite scores as the dependent variable and all individual difference measures, demographics, cabin safety knowledge, and safety symbol comprehension scores as candidate predictors. Stepwise entry criteria were set at $p \leq .05$ to enter and $p \geq .10$ to remove.

Statistical numeracy entered the model at Step 1, explaining 36% of the variance in briefing card comprehension, $R^2 = .36$, $F(1, 68) = 38.55$, $p < .001$. Cabin safety knowledge entered the model at Step 2, explaining an additional 7% of unique variance, $\Delta R^2 = .07$, $\Delta F(1, 67) = 8.50$, $p = .005$. The final two-predictor model accounted for a total of 43% of the variance in briefing card comprehension, $R^2 = .43$, adjusted $R^2 = .42$, $F(2, 67) = 25.65$, $p < .001$. All VIF values in the final model were at or near 1.0 (VIF = 1.06 for both predictors), indicating no concerns with multicollinearity. The final model consisted of statistical numeracy ($B = 4.10$, $SE = 0.72$, $\beta = .54$, $t = 5.66$, $p < .001$, 95% CI [2.65, 5.54]) and cabin safety knowledge ($B = 2.90$, $SE = 0.99$, $\beta = .28$, $t = 2.92$, $p = .005$, 95% CI [0.91, 4.87]). No other individual difference measures, demographic variables, or safety symbol comprehension scores met the criteria for entry into the model. Table 11 presents the excluded variables at each step, including their standardized beta coefficients, t values, significance levels, partial correlations, and VIF values, to provide a complete picture of all candidate predictors that were examined.

Table 11

Excluded Variables at Each Step of the Stepwise Regression

Variable	*β*	*t*	*p*	Partial *r*	VIF
Step 1 (Statistical Numeracy in model)					
Cabin Safety Knowledge	0.28	2.92	.005	.34	1.06
Agreeableness	0.18	1.92	.059	.23	1.02
Safety Symbol Comprehension	0.16	1.61	.112	.19	1.07
Emotional Stability	0.08	0.83	.410	.10	1.06
Graph Literacy	0.10	0.85	.400	.10	1.32
Openness to Experience	0.05	0.54	.595	.07	1.02
Extraversion	0.02	0.17	.867	.02	1.05
Flight History	-0.02	-0.17	.866	-.02	1.00
Conscientiousness	-0.05	-0.49	.624	-.06	1.00
Gender	-0.10	-1.02	.313	-.12	1.07
Step 2 (Statistical Numeracy and Cabin Safety Knowledge in model)					
Safety Symbol Comprehension	0.17	1.81	.074	.22	1.07
Agreeableness	0.11	1.18	.243	.14	1.12
Graph Literacy	0.10	0.94	.353	.11	1.32
Openness to Experience	0.06	0.61	.546	.07	1.02
Emotional Stability	0.05	0.52	.609	.06	1.07
Conscientiousness	-0.01	-0.14	.891	-.02	1.02
Flight History	-0.03	-0.33	.743	-.04	1.00
Extraversion	-0.04	-0.40	.689	-.05	1.09
Gender	-0.10	-1.01	.316	-.12	1.07

Note. Dependent variable: Individual Briefing Card Comprehension Composite Score. Step 1 predictor: Statistical Numeracy. Step 2 predictors: Statistical Numeracy and Cabin Safety Knowledge. Variables are ordered by partial correlation with the dependent variable at each step to facilitate interpretation. Column *β* lists the standardized regression coefficient if the variable were entered at this step.

Discussion

This study was designed to examine individual differences in airplane safety briefing card comprehension. Four primary findings emerged. First, overall comprehension remained well below minimum acceptable standards (ANSI Z535, 85% and ISO 9186, 69%), suggesting that

potentially dangerous deficiencies in passenger understanding have persisted for more than four decades. Second, statistical numeracy emerged as the single strongest predictor of comprehension, accounting for a substantial proportion of variance (36%). Third, domain-specific cabin safety knowledge also predicted comprehension, explaining a moderate amount of unique variance (i.e., 7%). Fourth, no other individual differences were reliable predictors of briefing card comprehension. Each of these findings and their implications are discussed below.

People Still Misunderstand Briefing Cards

This study found that airplane safety briefing card comprehension remains below acceptable standards. Of the 41 briefing card pictograms tested, only 18 exceeded the ISO 67% comprehension standard and only three exceeded the stricter ANSI 85% criterion, consistent with the pattern reported in the original FAA research (Corbett et al., 2008; Weed, 2013a, 2013b). The items with the greatest comprehension deficits were not randomly distributed across content areas but were concentrated in procedural categories requiring sequential interpretation of safety-critical actions (e.g., water evacuation, oxygen equipment usage, and overwing exit procedures). These procedural categories represent some of the most safety-critical actions a passenger could be required to take in an emergency. A passenger who cannot correctly interpret these procedures may be left without the understanding needed to act appropriately when it matters most. Moreover, unlike many individual risk decisions, aviation safety is inherently collective: A passenger who misunderstands an evacuation procedure puts not only themselves at risk, but may also endanger others (e.g., by failing to verify that an exit area is clear of hazards such as smoke or fire). Overall, these results suggest that potentially dangerous comprehension gaps have persisted since the original NTSB research, and that far too many people remain likely to misunderstand briefing cards, including those depicting the most critical safety procedures.

Risk Literacy Predicts Misunderstanding

This study is the first to systematically examine the relationship between risk literacy and airplane safety briefing card comprehension. Results revealed that statistical numeracy provided substantially greater predictive power than all other measured factors, accounting for substantially more variance than the next significant predictor, cabin safety knowledge. Notably, the sample in this study was relatively high in risk literacy (M = 3 out of 7, SD = 1.61), corresponding to a level that is achieved by only about 31% of the U.S. adult population (Allan, 2021). This pattern suggests that current briefing card designs may place demands on users that exceed typical skill levels, which could have additional unintended consequences that may amplify safety barriers (e.g., trust in information and authorities can be reduced when the comprehensibility of risk communications is low; Petrova et al., 2015; Garcia-Retamero & Cokely, 2017).

Consistent with prior research, it seems likely that numeracy may support more precise and elaborative encoding of relevant conceptual and configural briefing card information, enabling individuals to construct more representative understanding of safety information in long-term memory. In contrast, given that the risk reading level of the cards likely exceeds most people's ability levels, individuals with lower numeracy may be less likely to meaningfully engage with the cards or may simply not be able to interpret or accurately encode sequential or conditional procedures. Such mechanisms would be consistent with Skilled Decision Theory, which conceptualizes statistical numeracy as a knowledge-based, trainable skill that supports the development of detailed cognitive representations in long-term memory, rather than promoting complex or logical reasoning in working memory (Cokely et al., 2012, 2018). Moreover, the

current results are noteworthy because they suggest that misunderstanding is not random but is predictably related to numeracy. Because numeracy promotes risk comprehension via changes in cognitive representations (rather than differences in intelligence or logic), the findings seem to point to actionable pathways for reducing comprehension failures by specifically targeting and supporting the development of cognitive representations via visual aid design.

How can misunderstanding be reduced?

Training the entire flying public in statistical numeracy is not a feasible solution to the problem of briefing card misunderstanding. However, extensive research demonstrates that well-designed visual aids can substantially enhance risk comprehension across a wide range of skill levels. That is, effective risk communication depends not only on the abilities of the user but also on whether information is designed to be interpretable by individuals with varying levels of expertise (Garcia-Retamero & Cokely, 2013; Garcia-Retamero et al., 2019; Gigerenzer et al., 2007). Accordingly, research on transparent visual aids indicates that appropriately designed graphical representations can dramatically improve understanding even among individuals with relatively low numeracy (Garcia-Retamero & Cokely, 2017). Applied to airplane safety briefing cards, these principles suggest that redesign efforts should focus on reducing cognitive demands and scaffolding encoding of specific cognitive representations, including those required for accurate interpretation of sequential procedures. Specifically, future work could apply difficulty indexing, risk literacy norms, and protocol analyses to identify elements most prone to misunderstanding and iteratively redesign those elements of the briefing cards to improve accessibility for all people, regardless of numeracy skills. To the extent that these results generalize, the recommendations for development of transparent visual aids and improving risk literacy may provide a basis for efforts to redesign airplane safety briefing cards.

Limitations and Future Directions

Like all research, this project had limitations that could be addressed by future work. This study utilized a small, relatively homogenous sample of university undergraduates. While the strength of the relationship between risk literacy and briefing card comprehension was substantial enough to emerge despite the modest sample size, replication with larger, more diverse samples could test whether these effects generalize to the broader flying public (e.g., via probabilistically representative samples of adults in the U.S. and other countries).

Questions also remain about the extent to which briefing card comprehension scores translate into practical action in real emergency situations. Future research may benefit from developing and validating behavioral decision metrics alongside comprehension measures to establish when and to what extent comprehension of briefing card content translates into appropriate passenger action. For example, a study may incorporate a practical test of participants donning a life preserver after comprehension testing or could make use of serious game methodologies to simulate emergency conditions (Beben et al., 2021).

Provided the evidence that misunderstanding of briefing cards does indeed translate into actual decision vulnerability, there appears to be a need to improve the efficiency of the research instruments used to investigate briefing card comprehension. For example, the full briefing card comprehension battery from the FAA research, consisting of 41 briefing card pictograms and 88 individual short-answer questions, was substantial in terms of the time required for administration and the labor required for coding and scoring of participant responses. To address this concern, it may be useful to conduct an Item Response Theory analysis of the available data to determine whether a better brief test could be developed without requiring trade-offs in measurement quality (e.g., better item difficult range and discriminability, with less item

redundancy). Moreover, there may also be opportunities to develop better measures of related constructs. For example, the cabin safety knowledge questionnaire used in this study was newly developed and could be expanded and evaluated further for reliability and validity as a measure of practical cabin safety decision making. Together, a streamlined briefing card comprehension battery and a validated cabin safety knowledge measure might provide a more efficient and comprehensive toolkit for future research on airplane passenger safety information.

Finally, it seems reasonable to note that this study represents an initial step in understanding how individual differences in risk literacy relate to airplane safety briefing card comprehension. As such, it moves our understanding beyond deficits related to flying experience and safety expertise, demonstrating the potentially major role of individual differences in risk literacy can play in promoting airplane safety briefing card comprehension. While more research is needed, the establishment of a systematic link between risk literacy skills and safety communication advances a data-driven foundation for improving the accessibility and effectiveness of airplane safety briefing cards, with the goal of ensuring that critical safety information is understandable and actionable for all passengers.

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Appendix A: Cabin Safety Knowledge Test

CSK1: During a water evacuation, where should you inflate your aviation life preserver?

A: In your seat, before moving towards the exit.

B: Before you exit the airplane.

C: Just outside the airplane exit.*

D: Only if you get into the water.

CSK2: How many means of inflation does an aviation life preserver have?

A: One

B: Two*

C: Three

D: Four

CSK3: What should you do if your airplane is coming in for a landing and the crew start yelling "Brace! Brace! Brace!"?

A: Put your head firmly against the seat or bulkhead in front of you and hug your legs.*

B: Make sure your seatback and tray table are in the upright and locked position.

C: Make sure your carry-on item is stowed securely under the seat in-front of you.

D: Sit up straight, tighten your seatbelt, and put your hands firmly on your knees.

CSK4: If you are traveling with, or sitting next to someone who cannot put on the oxygen mask by themselves when it deploys, you should:

A: Help them put on their mask, then put on your mask.

B: Look around and see what everyone else is doing.

C: Put on your mask, the flight attendant will help them.

D: Put on your mask first, then help them put on their mask.*

CSK5: What are the oxygen masks in an airplane cabin deployed for?

A: Loss of airplane cabin pressure on the ground.

B: Smoke in the airplane cabin.

C: Fire in the airplane cabin.

D: Loss of airplane cabin pressure in flight.*

CSK6: Your airplane has just crashed during landing and you are sitting in a mid-cabin exit row seat. The cabin crew start yelling "Evacuate! Evacuate! Evacuate!" What should you do? **For this question, assume you are fully able to operate the exit door**

A: Immediately open the door and exit the airplane as quickly as possible.

B: Look out the window to see if there is any fire, water, or debris before deciding to open the door.*

C: Only open the door if the flight attendant instructs you to do so.

D: Open the door and help your fellow passengers exit the airplane.

CSK7: During an airplane evacuation you should:

A: Leave your luggage and any carry-on items.*

B: Take everything with you that you boarded with.

C: Take your carry-on items with you so they do not block the aisle.

D: Leave your luggage in the overhead bin, but take your carry-on items with you.

CSK8: Smoking or vaping on an airplane is:

A: Only allowed in the lavatory(bathroom).

B: Only allowed in the airplane cabin if the no-smoking light is turned off.

C: Vaping is allowed, but smoking is not allowed on an airplane.

D: Never allowed.*

CSK9: What do red lights on the floor or chairs in the aisle indicate?

A: Location of an exit.*

B: Do not enter.

C: Do not put any items past this line.

D: A non-functioning exit.

Appendix B: Individual Pictorial/Pictogram Results

1. **Seat Belt Usage (B1)**

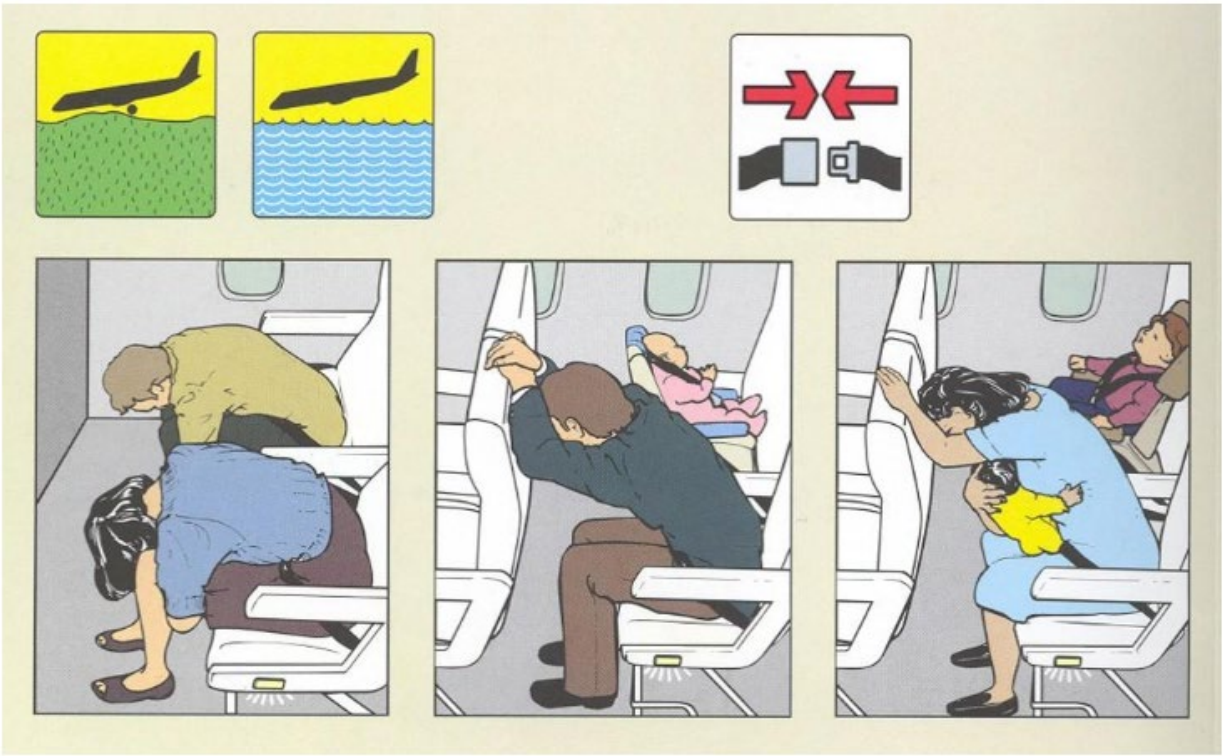


B1: Fully describe what you think this pictogram means.
Comprehension Criteria: Keep seat belt fastened at all times during flight.

B1 Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	49	70.00	1.00	70.00
Likely	11	15.71	0.75	11.79
Arguable	6	8.57	0.50	4.29
Suspect	0	0.00	0.25	0.00
Wrong	0	0.00	0.00	0.00
Opposite	4	5.71	-1.00	-5.71
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**80.36**

2. **Brace Position (BP1)**



BP1A: Fully describe what you think these people are doing.
Comprehension Criteria: Assuming the brace position for impact or emergency landing.

BP1A Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	45	64.29	1.00	64.29
Likely	4	5.71	0.75	4.29
Arguable	12	17.14	0.50	8.57
Suspect	5	7.14	0.25	1.79
Wrong	4	5.71	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**78.93**

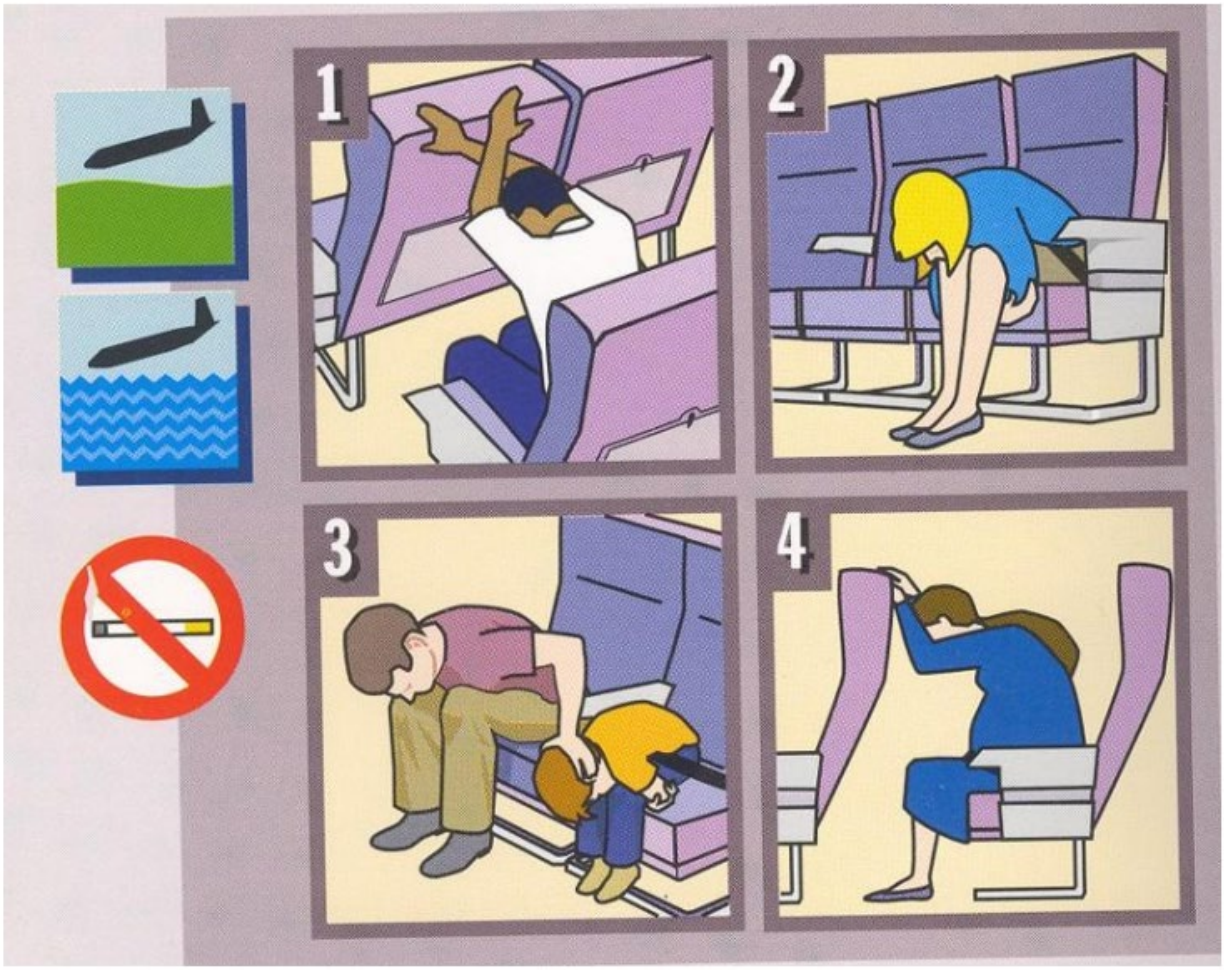
BP1B: Why do you think they are doing different things?

Comprehension Criteria: They are of different sizes and some have a seat to lean against whereas others do not.

BP1B Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	23	32.86	1.00	32.86
Likely	14	20.00	0.75	15.00
Arguable	16	22.86	0.50	11.43
Suspect	5	7.14	0.25	1.79
Wrong	12	17.14	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**61.07**

3. **Brace Position (BP2)**



BP2A: Fully describe what you think these people are doing.
Comprehension Criteria: Assuming the brace position for impact or emergency landing.

BP2A Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	44	62.86	1.00	62.86
Likely	9	12.86	0.75	9.64
Arguable	10	14.29	0.50	7.14
Suspect	7	10.00	0.25	2.50
Wrong	0	0.00	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**82.14**

BP2B: Why do you think they are doing different things?
Comprehension Criteria: They are of different sizes and some have a seat to lean against whereas others do not.

BP2B Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	29	41.43	1.00	41.43
Likely	9	12.86	0.75	9.64
Arguable	12	17.14	0.50	8.57
Suspect	7	10.00	0.25	2.50
Wrong	13	18.57	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**62.14**

4. **Brace Position (BP3)**



BP3A: Fully describe what you think these people are doing.
Comprehension Criteria: Assuming the brace position for impact or emergency landing.

BP3A Question Score

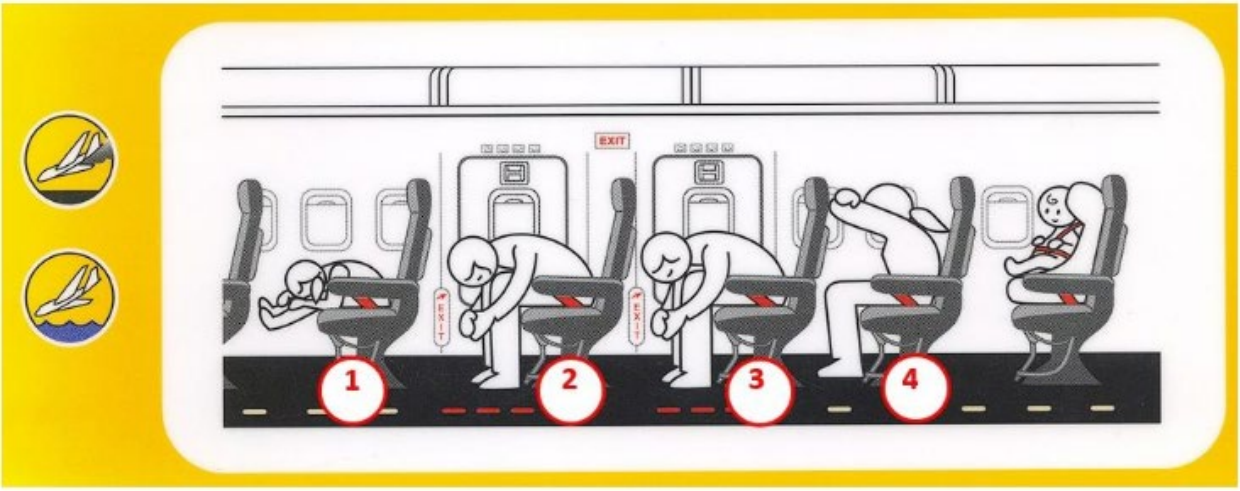
Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	44	62.86	1.00	62.86
Likely	12	17.14	0.75	12.86
Arguable	3	4.29	0.50	2.14
Suspect	4	5.71	0.25	1.43
Wrong	7	10.00	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**79.29**

BP3B: Why do you think they are doing different things?
Comprehension Criteria: They are of different sizes and some have a seat to lean against whereas others do not.

BP3B Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	12	17.14	1.00	17.14
Likely	24	34.29	0.75	25.71
Arguable	18	25.71	0.50	12.86
Suspect	5	7.14	0.25	1.79
Wrong	10	14.29	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	1	1.43	0.00	0.00
Total	**70**	**100.0**		**57.50**

5. **Brace Position (BP4)**



BP4A: Fully describe what passengers 1 through 4 are doing.
Comprehension Criteria: Assuming the brace position for impact or emergency landing.

BP4A Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	39	55.71	1.00	55.71
Likely	11	15.71	0.75	11.79
Arguable	6	8.57	0.50	4.29
Suspect	9	12.86	0.25	3.21
Wrong	5	7.14	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**75.00**

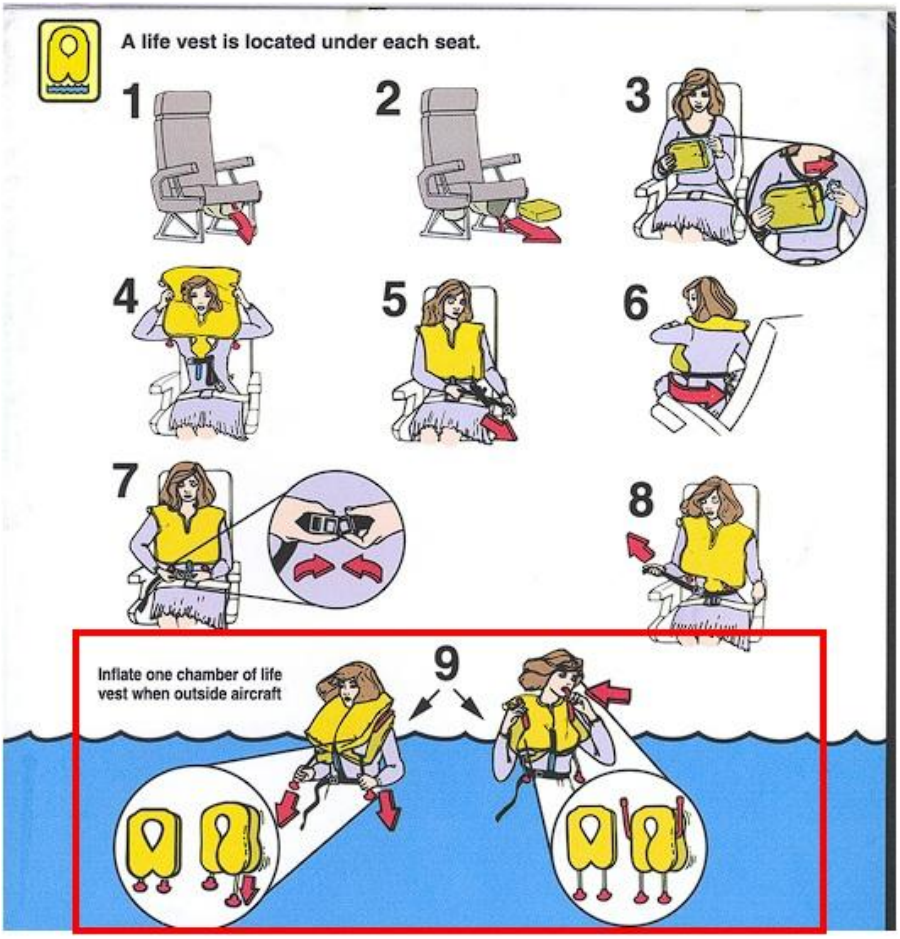
BP4B: Why are they doing it?
Comprehension Criteria: They are of different sizes and some have a seat to lean against whereas others do not.

BP4B Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	1	1.43	1.00	1.43
Likely	1	1.43	0.75	1.07
Arguable	0	0.00	0.50	0.00
Suspect	43	61.43	0.25	15.36
Wrong	25	35.71	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**17.86**

6. **Flotation Device Usage (FD1)**

Segment 9 (in the red box) includes two illustrations.



FD1A: Fully describe each illustration in segment 9.
Comprehension Criteria: Left: pull to inflate outside of aircraft, Right: Blow into tube to inflate outside of aircraft.

FD1A Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	35	50.00	1.00	50.00
Likely	1	1.43	0.75	1.07
Arguable	15	21.43	0.50	10.71
Suspect	12	17.14	0.25	4.29
Wrong	5	7.14	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	2	2.86	0.00	0.00
Total	**70**	**100.0**		**66.07**

FD1B: Why do you think there are two illustrations rather than one?
Comprehension Criteria: Alternative messages in case one method fails.

FD1B Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	32	45.71	1.00	45.71
Likely	4	5.71	0.75	4.29
Arguable	5	7.14	0.50	3.57
Suspect	5	7.14	0.25	1.79
Wrong	22	31.43	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	2	2.86	0.00	0.00
Total	**70**	**100.0**		**55.36**

7. **Flotation Device Usage (FD2)**



FD2A: Fully describe what is depicted in segment 8 of this pictogram.
Comprehension Criteria: Once outside the airplane, pull down on the red tabs to inflate the lifevest.

FD2A Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	24	34.29	1.00	34.29
Likely	7	10.00	0.75	7.50
Arguable	11	15.71	0.50	7.86
Suspect	5	7.14	0.25	1.79
Wrong	22	31.43	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	1	1.43	0.00	0.00
Total	**70**	**100.0**		**51.43**

FD2B: Fully describe what is depicted in segment 9 of this pictogram.
Comprehension Criteria: Blow into the red tube for added inflation, if necessary.

FD2B Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	33	47.14	1.00	47.14
Likely	22	31.43	0.75	23.57
Arguable	4	5.71	0.50	2.86
Suspect	4	5.71	0.25	1.43
Wrong	6	8.57	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	1	1.43	0.00	0.00
Total	**70**	**100.0**		**75.00**

FD2C: Fully describe what is depicted in segment 10 of this pictogram.
Comprehension Criteria: Once in the water at night, pull tab to illuminate locator signal light.

FD2C Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	4	5.71	1.00	5.71
Likely	4	5.71	0.75	4.29
Arguable	16	22.86	0.50	11.43
Suspect	23	32.86	0.25	8.21
Wrong	19	27.14	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	4	5.71	0.00	0.00
Total	**70**	**100.0**		**29.64**

8. **Flotation Device Usage (FD3)**

These questions concern the actions of the two people in section 5 (red box).



FD3A: Fully describe the actions of the person on the left in section 5.
Comprehension Criteria: Female, inflating vest using pull tabs.

FD3A Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	30	42.86	1.00	42.86
Likely	3	4.29	0.75	3.21
Arguable	9	12.86	0.50	6.43
Suspect	7	10.00	0.25	2.50
Wrong	20	28.57	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	1	1.43	0.00	0.00
Total	**70**	**100.0**		**55.00**

FD3B: Fully describe the actions of the person on the right in section 5.
Comprehension Criteria: Male, blowing in tube to inflate vest.

FD3B Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	25	35.71	1.00	35.71
Likely	8	11.43	0.75	8.57
Arguable	2	2.86	0.50	1.43
Suspect	1	1.43	0.25	0.36
Wrong	34	48.57	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**46.07**

FD3C: Where do you think they are performing these actions?
Comprehension Criteria: Outside the aircraft.

FD3C Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	8	11.43	1.00	11.43
Likely	2	2.86	0.75	2.14
Arguable	9	12.86	0.50	6.43
Suspect	0	0.00	0.25	0.00
Wrong	28	40.00	0.00	0.00
Opposite	23	32.86	-1.00	-32.86
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**-12.86**

9. **Flotation Device Usage - Child (FD1)**



FDC1A: Describe what you think segment 3 means.
Comprehension Criteria: Buckle the lifevest straps and tighten.

FDC1A Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	23	32.86	1.00	32.86
Likely	6	8.57	0.75	6.43
Arguable	13	18.57	0.50	9.29
Suspect	11	15.71	0.25	3.93
Wrong	14	20.00	0.00	0.00
Opposite	3	4.29	-1.00	-4.29
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**48.21**

FDC1B: Describe what you think segment 4 means.
Comprehension Criteria: Inflate the vest by pulling down on the red tab.

FDC1B Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	35	50.00	1.00	50.00
Likely	13	18.57	0.75	13.93
Arguable	5	7.14	0.50	3.57
Suspect	4	5.71	0.25	1.43
Wrong	11	15.71	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	2	2.86	0.00	0.00
Total	**70**	**100.0**		**68.93**

10. **Floor Exit Lights (FL1)**

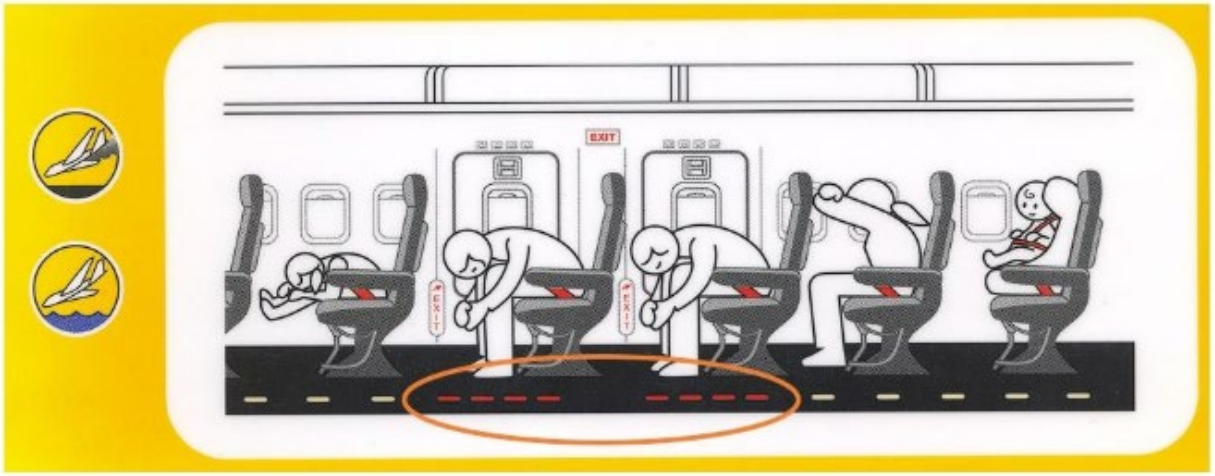


FL1: Describe exactly what you think this pictogram indicates.
Comprehension Criteria: How to follow the emergency lights. Stay below the smoke. Do not wear high heels or take any baggage. Lights will be red at an exit.

FL1 Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	28	40.00	1.00	40.00
Likely	20	28.57	0.75	21.43
Arguable	9	12.86	0.50	6.43
Suspect	9	12.86	0.25	3.21
Wrong	3	4.29	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	1	1.43	0.00	0.00
Total	**70**	**100.0**		**71.07**

11. **Floor Exit Lights (FL2)**



FL2A: What does the red broken line indicate?
Comprehension Criteria: Passageways leading to overwing emergency exits.

FL2A Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	59	84.29	1.00	84.29
Likely	1	1.43	0.75	1.07
Arguable	1	1.43	0.50	0.71
Suspect	0	0.00	0.25	0.00
Wrong	6	8.57	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	3	4.29	0.00	0.00
Total	**70**	**100.0**		**86.07**

FL2B: What action would you take if you saw this on the plane?
Comprehension Criteria: Turn into the passageway from the aisle to get to the emergency exit.

FL2B Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	26	37.14	1.00	37.14
Likely	6	8.57	0.75	6.43
Arguable	1	1.43	0.50	0.71
Suspect	10	14.29	0.25	3.57
Wrong	24	34.29	0.00	0.00
Opposite	1	1.43	-1.00	-1.43
None	2	2.86	0.00	0.00
Total	**70**	**100.0**		**46.43**

12. **Floor Level Exits (FLEX1)**



FLEX1A: Fully describe what you think segment 3 means.
Comprehension Criteria: Pull up on handle.

FLEX1A Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	26	37.14	1.00	37.14
Likely	6	8.57	0.75	6.43
Arguable	5	7.14	0.50	3.57
Suspect	8	11.43	0.25	2.86
Wrong	24	34.29	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	1	1.43	0.00	0.00
Total	**70**	**100.0**		**50.00**

FLEX1B: Fully describe what you think segment 4 means.
Comprehension Criteria: Jump or step out, do not sit.

FLEX1B Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	35	50.00	1.00	50.00
Likely	18	25.71	0.75	19.29
Arguable	2	2.86	0.50	1.43
Suspect	14	20.00	0.25	5.00
Wrong	1	1.43	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**75.71**

13. **Floor Level Exits (FLEX2)**

These pictograms are presented together on a briefing card. Study them both.



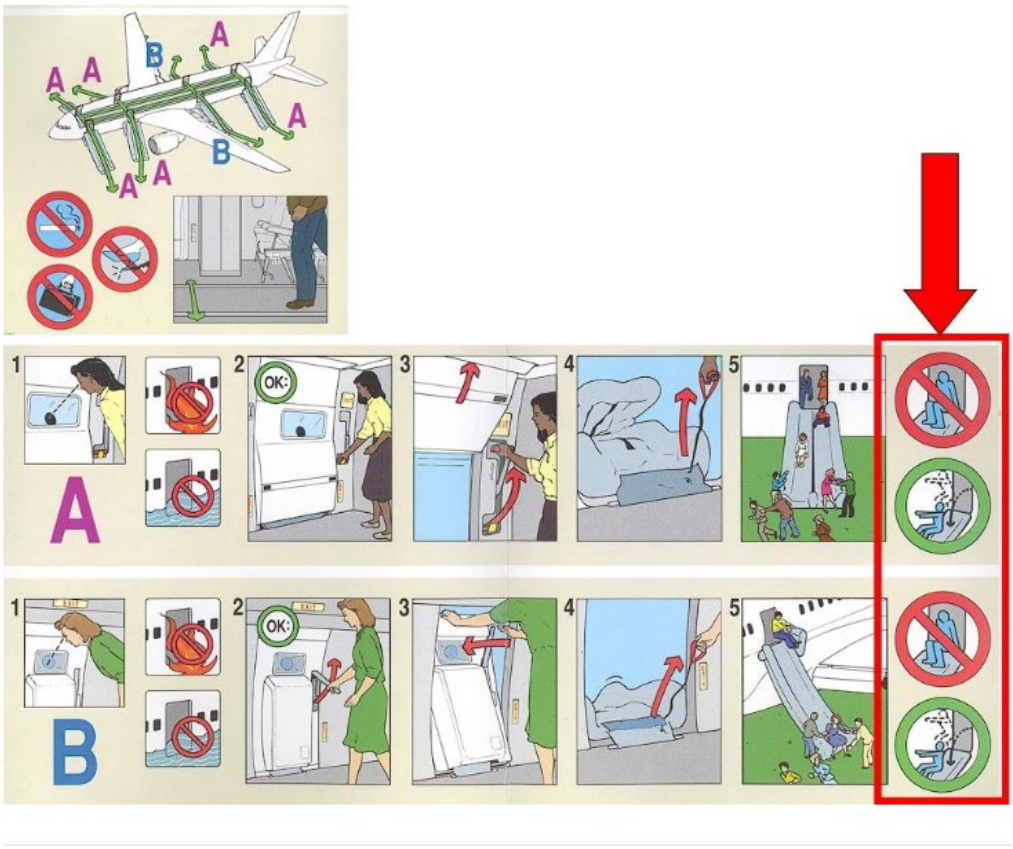
FLEX2: Why do you think there are separate pictograms for A and B?
Comprehension Criteria: Pictogram A presents operating instructions for a floor-level exit and pictogram B presents operating instructions for an overwing exit.

FLEX2 Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	22	31.43	1.00	31.43
Likely	2	2.86	0.75	2.14
Arguable	24	34.29	0.50	17.14
Suspect	5	7.14	0.25	1.79
Wrong	16	22.86	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	1	1.43	0.00	0.00
Total	**70**	**100.0**		**52.50**

14. **Floor Level Exits (FLEX3)**

Study these pictograms.



FLEX3: Please describe exactly what you think the section in the box indicated by an arrow means.

Comprehension Criteria: Jump to slide, do not sit.

FLEX3 Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	37	52.86	1.00	52.86
Likely	4	5.71	0.75	4.29
Arguable	17	24.29	0.50	12.14
Suspect	11	15.71	0.25	3.93
Wrong	1	1.43	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**73.21**

15. **Floor Level Exits (FLEX4)**



FLEX4A: Fully describe what symbols A and B mean.
Comprehension Criteria: <u>No luggage/bags, No high heels/shoes.</u>

FLEX4A Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	54	77.14	1.00	77.14
Likely	6	8.57	0.75	6.43
Arguable	7	10.00	0.50	5.00
Suspect	0	0.00	0.25	0.00
Wrong	1	1.43	0.00	0.00
Opposite	1	1.43	-1.00	-1.43
None	1	1.43	0.00	0.00
Total	**70**	**100.0**		**87.14**

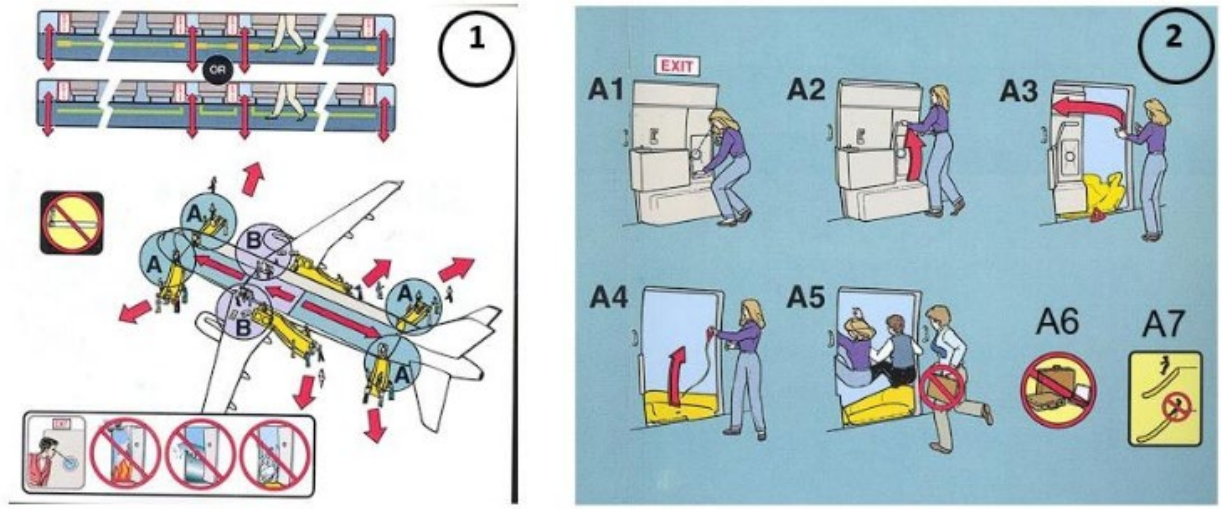
FLEX4B: Why do you think symbols A and B are included in this pictogram?
Comprehension Criteria: Bags could cause blockage/slow egress, High heels could puncture the slide.

FLEX4B Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	15	21.43	1.00	21.43
Likely	28	40.00	0.75	30.00
Arguable	19	27.14	0.50	13.57
Suspect	2	2.86	0.25	0.71
Wrong	5	7.14	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	1	1.43	0.00	0.00
Total	**70**	**100.0**		**65.71**

16. **Floor Level Exits (FLEX5)**

These two pictograms are presented together on a briefing card. Study them both.



FLEX5A: What does pictogram 1 show?
Comprehension Criteria: Floor markers/lighting. Shows exits. No smoking. Look outside, do not exit if fire, smoke, or debris.

FLEX5A Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	8	11.43	1.00	11.43
Likely	3	4.29	0.75	3.21
Arguable	5	7.14	0.50	3.57
Suspect	49	70.00	0.25	17.50
Wrong	5	7.14	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**35.71**

FLEX5B: In pictogram 2, fully describe what segment A5 means.
Comprehension Criteria: A5- Jump on slide, no luggage.

FLEX5B Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	18	25.71	1.00	25.71
Likely	5	7.14	0.75	5.36
Arguable	37	52.86	0.50	26.43
Suspect	10	14.29	0.25	3.57
Wrong	0	0.00	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**61.07**

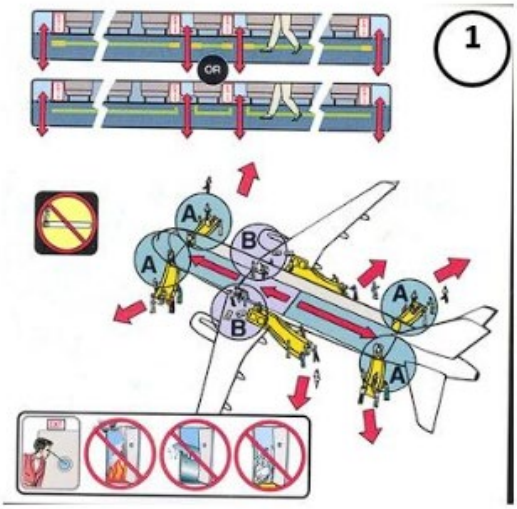
FLEX5C: In pictogram 2, fully describe what segment A7 means.
Comprehension Criteria: A7- Jump do not sit.

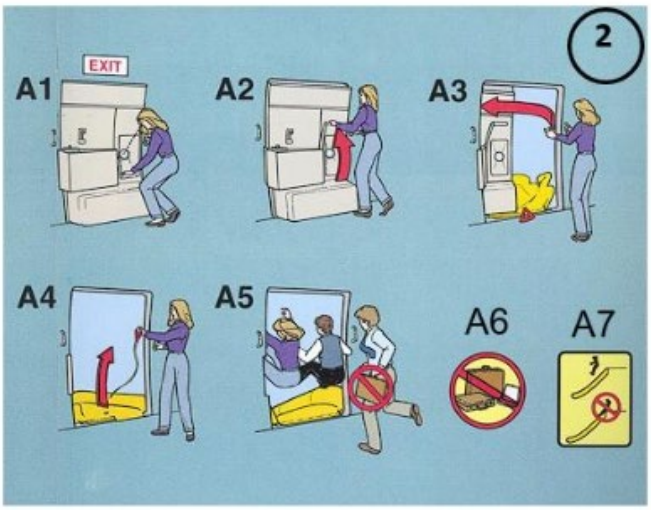
FLEX5C Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	43	61.43	1.00	61.43
Likely	7	10.00	0.75	7.50
Arguable	3	4.29	0.50	2.14
Suspect	9	12.86	0.25	3.21
Wrong	4	5.71	0.00	0.00
Opposite	4	5.71	-1.00	-5.71
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**68.57**

17. **Floor Level Exits (FLEX6)**

These two pictograms are presented together on a briefing card. Study them both.





FLEX6A: In pictogram 2, fully describe what you think segment A1 means. Use pictogram 1 as a reference, if necessary.

Comprehension Criteria: Look for fire, water, or debris.

FLEX6A Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	11	15.71	1.00	15.71
Likely	5	7.14	0.75	5.36
Arguable	0	0.00	0.50	0.00
Suspect	0	0.00	0.25	0.00
Wrong	52	74.29	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	2	2.86	0.00	0.00
Total	**70**	**100.0**		**21.07**

FLEX6B: In pictogram 2, fully describe what you think segment A2 means. Use pictogram 1 as a reference, if necessary.
Comprehension Criteria: Pull up on handle to open.

FLEX6B Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	37	52.86	1.00	52.86
Likely	11	15.71	0.75	11.79
Arguable	2	2.86	0.50	1.43
Suspect	14	20.00	0.25	5.00
Wrong	4	5.71	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	2	2.86	0.00	0.00
Total	**70**	**100.0**		**71.07**

FLEX6C: In pictogram 2, fully describe what you think segment A3 means. Use pictogram 1 as a reference, if necessary.
Comprehension Criteria: Push handle to open door.

FLEX6C Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	19	27.14	1.00	27.14
Likely	31	44.29	0.75	33.21
Arguable	6	8.57	0.50	4.29
Suspect	4	5.71	0.25	1.43
Wrong	8	11.43	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	2	2.86	0.00	0.00
Total	**70**	**100.0**		**66.07**

FLEX6D: In pictogram 2, fully describe what you think segment A4 means. Use pictogram 1 as a reference, if necessary.
Comprehension Criteria: Pull handle to activate slide.

FLEX6D Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	28	40.00	1.00	40.00
Likely	6	8.57	0.75	6.43
Arguable	16	22.86	0.50	11.43
Suspect	3	4.29	0.25	1.07
Wrong	15	21.43	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	2	2.86	0.00	0.00
Total	**70**	**100.0**		**58.93**

FLEX6E: In pictogram 2, fully describe what you think segment A5 means. Use pictogram 1 as a reference, if necessary.
Comprehension Criteria: Jump on slide. No carry ons.

FLEX6E Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	19	27.14	1.00	27.14
Likely	26	37.14	0.75	27.86
Arguable	15	21.43	0.50	10.71
Suspect	6	8.57	0.25	2.14
Wrong	2	2.86	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	2	2.86	0.00	0.00
Total	**70**	**100.0**		**67.86**

FLEX6F: In pictogram 2, fully describe what you think segment A6 means. Use pictogram 1 as a reference, if necessary.
Comprehension Criteria: No carry ons.

FLEX6F Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	57	81.43	1.00	81.43
Likely	8	11.43	0.75	8.57
Arguable	0	0.00	0.50	0.00
Suspect	1	1.43	0.25	0.36
Wrong	2	2.86	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	2	2.86	0.00	0.00
Total	**70**	**100.0**		**90.36**

FLEX6G: In pictogram 2, fully describe what you think segment A7 means. Use pictogram 1 as a reference, if necessary.
Comprehension Criteria: Jump do not sit.

FLEX6G Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	41	58.57	1.00	58.57
Likely	6	8.57	0.75	6.43
Arguable	0	0.00	0.50	0.00
Suspect	7	10.00	0.25	2.50
Wrong	6	8.57	0.00	0.00
Opposite	8	11.43	-1.00	-11.43
None	2	2.86	0.00	0.00
Total	**70**	**100.0**		**56.07**

18. **No Smoking in Lavatory (L1)**



L1A: Fully describe what you think section A of this pictogram means.
Comprehension Criteria: No Smoking.

L1A Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	70	100.00	1.00	100.00
Likely	0	0.00	0.75	0.00
Arguable	0	0.00	0.50	0.00
Suspect	0	0.00	0.25	0.00
Wrong	0	0.00	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**100.00**

L1B: Fully describe what you think section B of this pictogram means.
Comprehension Criteria: Do not tamper/touch detector.

L1B Question Score

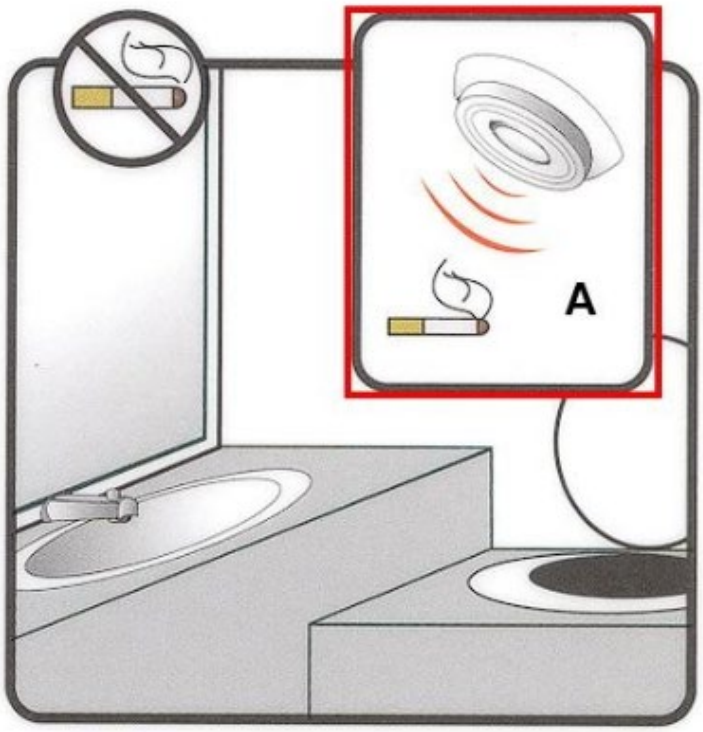
Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	13	18.57	1.00	18.57
Likely	0	0.00	0.75	0.00
Arguable	4	5.71	0.50	2.86
Suspect	26	37.14	0.25	9.29
Wrong	24	34.29	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	3	4.29	0.00	0.00
Total	**70**	**100.0**		**30.71**

L1C: Fully describe what you think section C of this pictogram means.
Comprehension Criteria: No smoking in lavatory.

L1C Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	54	77.14	1.00	77.14
Likely	0	0.00	0.75	0.00
Arguable	5	7.14	0.50	3.57
Suspect	0	0.00	0.25	0.00
Wrong	9	12.86	0.00	0.00
Opposite	1	1.43	-1.00	-1.43
None	1	1.43	0.00	0.00
Total	**70**	**100.0**		**79.29**

19. **No Smoking in Lavatory (L2)**

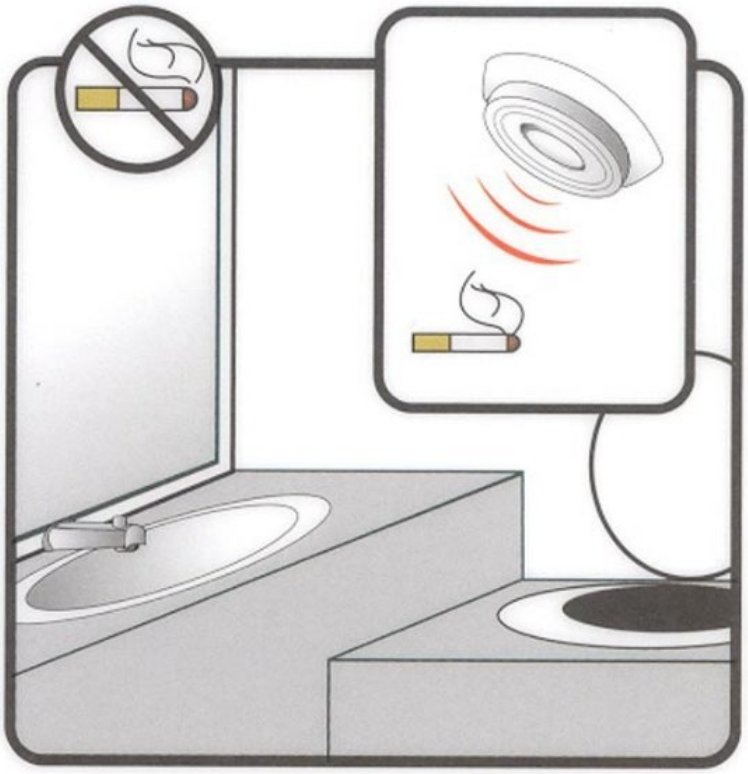


L2: What do you think segment A of this pictogram indicates?
Comprehension Criteria: Smoking will set off alarm.

L2 Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	33	47.14	1.00	47.14
Likely	9	12.86	0.75	9.64
Arguable	10	14.29	0.50	7.14
Suspect	7	10.00	0.25	2.50
Wrong	9	12.86	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	2	2.86	0.00	0.00
Total	**70**	**100.0**		**66.43**

20. **No Smoking in Lavatory (L3)**



L3: (Multiple choice) According to this pictogram, smoking is allowed:
A: When the captain is talking on the public address system.
B: When music is playing.
C: Never.
D: Anytime.

Comprehension Criteria: C: Never.

L3 Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	68	97.14	1.00	97.14
Likely	0	0.00	0.75	0.00
Arguable	0	0.00	0.50	0.00
Suspect	0	0.00	0.25	0.00
Wrong	2	2.86	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**97.14**

21. **No Smoking in Lavatory (L4)**



L4A: Fully describe what you think this pictogram means.
Comprehension Criteria: No smoking in lavatory.

L4A Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	65	92.86	1.00	92.86
Likely	5	7.14	0.75	5.36
Arguable	0	0.00	0.50	0.00
Suspect	0	0.00	0.25	0.00
Wrong	0	0.00	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**98.21**

L4B: Why would it be important?
Comprehension Criteria: There is a danger of causing a fire.

L4B Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	20	28.57	1.00	28.57
Likely	3	4.29	0.75	3.21
Arguable	16	22.86	0.50	11.43
Suspect	21	30.00	0.25	7.50
Wrong	10	14.29	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**50.71**

22. **Oxygen Equipment Usage (O1)**



O1: (True/False) According to this pictogram, the oxygen masks will deploy from overhead during a fire so that all passengers can breathe while they wait to evacuate.
Comprehension Criteria: <u>False</u>

O1 Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	22	31.43	1.00	31.43
Likely	0	0.00	0.75	0.00
Arguable	0	0.00	0.50	0.00
Suspect	0	0.00	0.25	0.00
Wrong	48	68.57	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**31.43**

23. **Oxygen Equipment Usage (O2)**



O2A: Fully describe what you think the counter (Sec.) is telling you.
Comprehension Criteria: The maximum number of seconds a passenger should take to don his/her mask and help someone else don theirs.

O2A Question Score

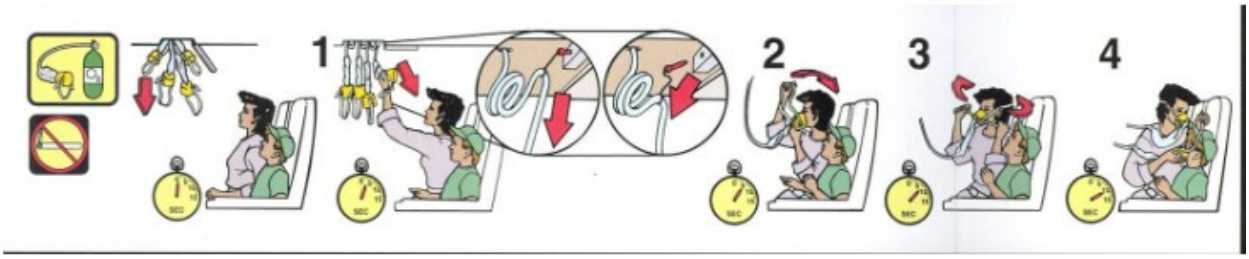
Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	25	35.71	1.00	35.71
Likely	9	12.86	0.75	9.64
Arguable	2	2.86	0.50	1.43
Suspect	3	4.29	0.25	1.07
Wrong	29	41.43	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	2	2.86	0.00	0.00
Total	**70**	**100.0**		**47.86**

O2B: Why do you think it is important?
Comprehension Criteria: The amount of oxygen in the atmosphere at very high altitudes is very small and a passenger can become incapacitated very quickly.

O2B Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	13	18.57	1.00	18.57
Likely	18	25.71	0.75	19.29
Arguable	8	11.43	0.50	5.71
Suspect	5	7.14	0.25	1.79
Wrong	24	34.29	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	2	2.86	0.00	0.00
Total	**70**	**100.0**		**45.36**

24. **Oxygen Equipment Usage (O3)**



O3A: Why do you think a clock is included in this pictogram?
Comprehension Criteria: Because there is little time before you pass out/to show urgency/to show how much time you have.

O3A Question Score

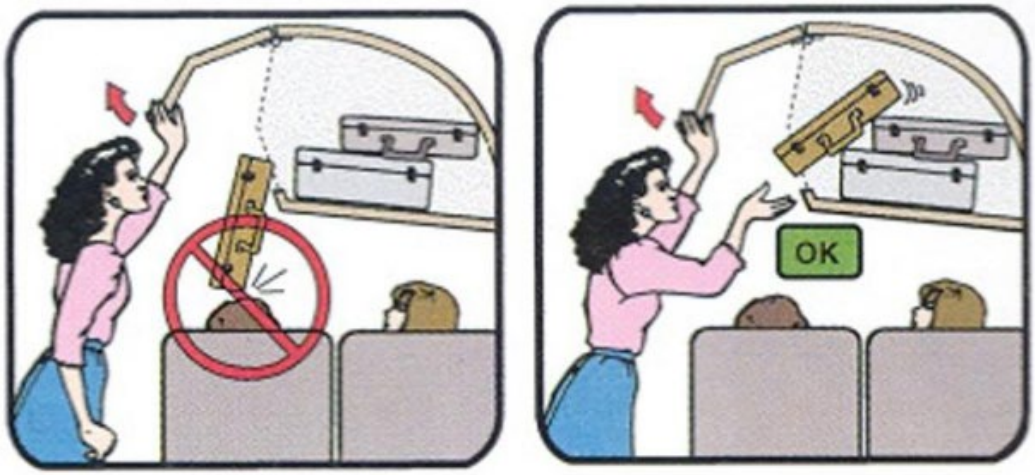
Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	5	7.14	1.00	7.14
Likely	30	42.86	0.75	32.14
Arguable	9	12.86	0.50	6.43
Suspect	15	21.43	0.25	5.36
Wrong	10	14.29	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	1	1.43	0.00	0.00
Total	**70**	**100.0**		**51.07**

O3B: What do you think the clock is telling you?
Comprehension Criteria: That you have less than 15 sec. to get the oxygen mask on you and your child.

O3B Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	12	17.14	1.00	17.14
Likely	33	47.14	0.75	35.36
Arguable	10	14.29	0.50	7.14
Suspect	6	8.57	0.25	2.14
Wrong	9	12.86	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**61.79**

25. **Overhead Bin Safety (OB1)**



OB1: Fully describe what you think this pictogram means.
Comprehension Criteria: Be prepared to catch falling items when opening the overhead bin.

OB1 Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	40	57.14	1.00	57.14
Likely	5	7.14	0.75	5.36
Arguable	17	24.29	0.50	12.14
Suspect	6	8.57	0.25	2.14
Wrong	2	2.86	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**76.79**

26. **Overwing Exits (OWEX1)**



OWEX1A: Who do you think the people in the circle are?
Comprehension Criteria: Able-bodied passengers who have already evacuated and are assisting with the evacuation.

OWEX1A Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	20	28.57	1.00	28.57
Likely	20	28.57	0.75	21.43
Arguable	1	1.43	0.50	0.71
Suspect	6	8.57	0.25	2.14
Wrong	23	32.86	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**52.86**

OWEX1B: What are they doing?
Comprehension Criteria: Helping other passengers get off the slide during an emergency evacuation.

OWEX1B Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	29	41.43	1.00	41.43
Likely	30	42.86	0.75	32.14
Arguable	2	2.86	0.50	1.43
Suspect	8	11.43	0.25	2.86
Wrong	1	1.43	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**77.86**

27. **Overwing Exits (OWEX2)**



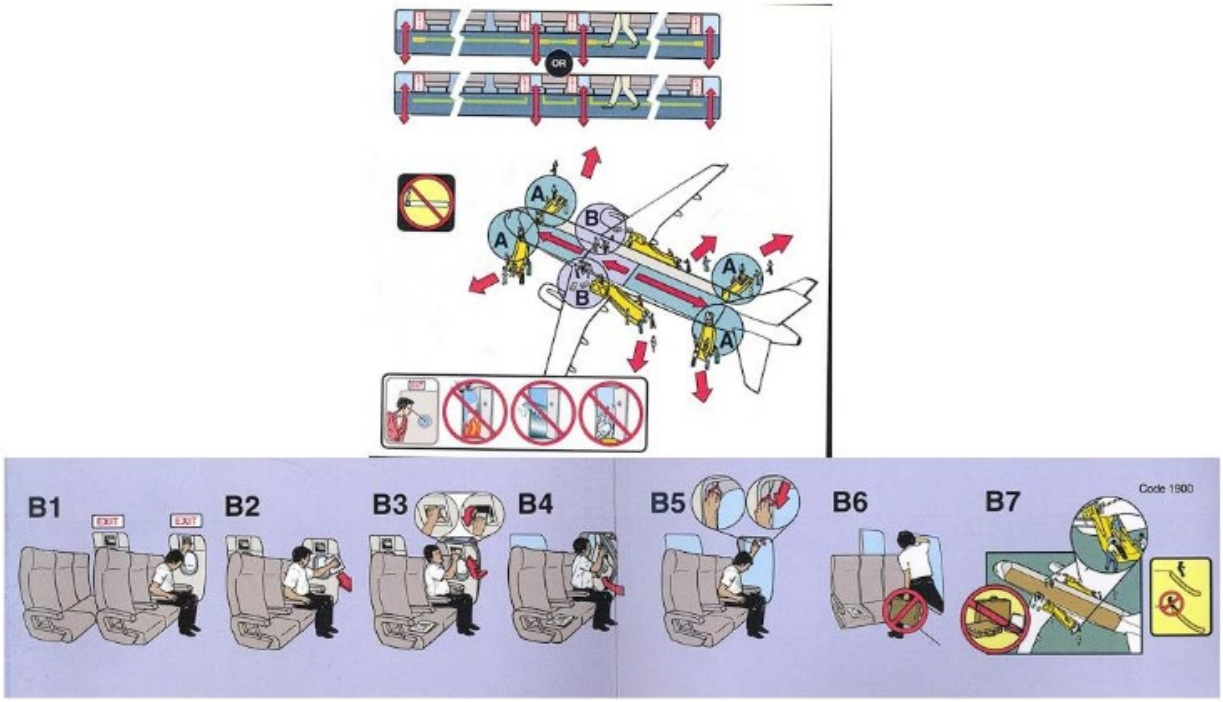
OWEX2: Fully explain what you think is happening in segment 2.
Comprehension Criteria: Pull the handle to deploy the slide.

OWEX2 Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	18	25.71	1.00	25.71
Likely	7	10.00	0.75	7.50
Arguable	6	8.57	0.50	4.29
Suspect	4	5.71	0.25	1.43
Wrong	35	50.00	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**38.93**

28. **Overwing Exits (OWEX3)**

These two pictograms are presented together on a briefing card. Study them both.



OWEX3A: Fully describe what is depicted in segment B1.
Comprehension Criteria: Look out window.

OWEX3A Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	16	22.86	1.00	22.86
Likely	9	12.86	0.75	9.64
Arguable	2	2.86	0.50	1.43
Suspect	15	21.43	0.25	5.36
Wrong	27	38.57	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	1	1.43	0.00	0.00
Total	**70**	**100.0**		**39.29**

OWEX3B: Fully describe what is depicted in segment B2.
Comprehension Criteria: Remove cover.

OWEX3B Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	13	18.57	1.00	18.57
Likely	6	8.57	0.75	6.43
Arguable	5	7.14	0.50	3.57
Suspect	2	2.86	0.25	0.71
Wrong	43	61.43	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	1	1.43	0.00	0.00
Total	**70**	**100.0**		**29.29**

OWEX3C: Fully describe what is depicted in segment B3.
Comprehension Criteria: Pull on handle to open.

OWEX3C Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	20	28.57	1.00	28.57
Likely	23	32.86	0.75	24.64
Arguable	5	7.14	0.50	3.57
Suspect	8	11.43	0.25	2.86
Wrong	14	20.00	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**59.64**

OWEX3D: Fully describe what is depicted in segment B4.
Comprehension Criteria: Throw hatch out.

OWEX3D Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	23	32.86	1.00	32.86
Likely	34	48.57	0.75	36.43
Arguable	4	5.71	0.50	2.86
Suspect	0	0.00	0.25	0.00
Wrong	9	12.86	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**72.14**

OWEX3E: Fully describe what is depicted in segment B5.
Comprehension Criteria: Pull handle to inflate slide.

OWEX3E Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	19	27.14	1.00	27.14
Likely	14	20.00	0.75	15.00
Arguable	3	4.29	0.50	2.14
Suspect	5	7.14	0.25	1.79
Wrong	29	41.43	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**46.07**

OWEX3F: Fully describe what is depicted in segment B6.
Comprehension Criteria: Do not take carry on luggage with you.

OWEX3F Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	53	75.71	1.00	75.71
Likely	0	0.00	0.75	0.00
Arguable	3	4.29	0.50	2.14
Suspect	7	10.00	0.25	2.50
Wrong	3	4.29	0.00	0.00
Opposite	4	5.71	-1.00	-5.71
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**74.64**

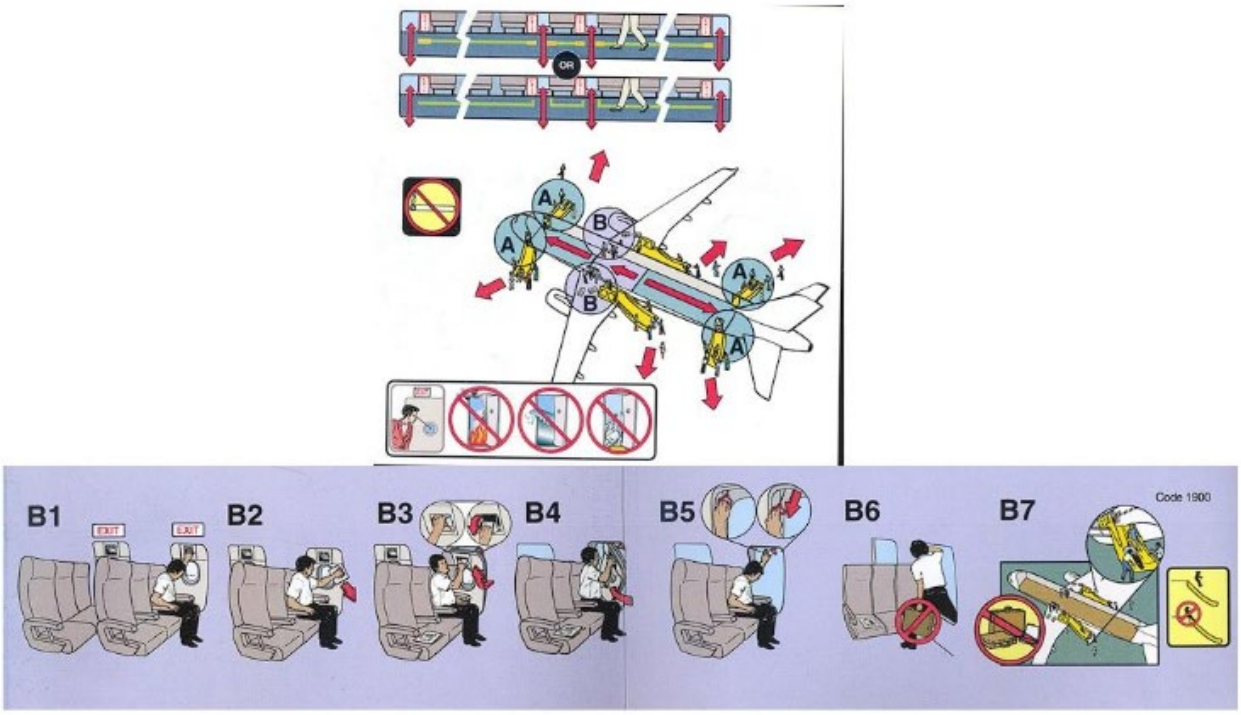
OWEX3G: Fully describe what is depicted in segment B7.
Comprehension Criteria: Jump, do not sit. No luggage.

OWEX3G Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	29	41.43	1.00	41.43
Likely	10	14.29	0.75	10.71
Arguable	12	17.14	0.50	8.57
Suspect	14	20.00	0.25	5.00
Wrong	3	4.29	0.00	0.00
Opposite	2	2.86	-1.00	-2.86
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**62.86**

29. **Overwing Exits (OWEX4)**

These two pictograms are presented together on a briefing card. Study them both.



OWEX4A: Why are the segments in the bottom pictogram identified as B1 through B7?
Comprehension Criteria: Steps refer to B/Over wing exit in the top.

OWEX4A Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	17	24.29	1.00	24.29
Likely	5	7.14	0.75	5.36
Arguable	1	1.43	0.50	0.71
Suspect	32	45.71	0.25	11.43
Wrong	12	17.14	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	3	4.29	0.00	0.00
Total	**70**	**100.0**		**41.79**

OWEX4B: What is the significance of segment B5?
Comprehension Criteria: Pull cord to inflate slide ramp.

OWEX4B Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	13	18.57	1.00	18.57
Likely	11	15.71	0.75	11.79
Arguable	7	10.00	0.50	5.00
Suspect	7	10.00	0.25	2.50
Wrong	28	40.00	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	4	5.71	0.00	0.00
Total	**70**	**100.0**		**37.86**

30. **Overwing Exits (OWEX5)**



OWEX5A: Fully explain what you think this person is doing in segment 1 of the pictogram.
Comprehension Criteria: Look outside and pull handle down.

OWEX5A Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	1	2.22	1.00	2.22
Likely	21	46.67	0.75	35.00
Arguable	19	42.22	0.50	21.11
Suspect	4	8.89	0.25	2.22
Wrong	0	0.00	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**45**	**100.0**		**60.56**

OWEX5B: Fully explain what you think this person is doing in segment 2 of the pictogram.
Comprehension Criteria: Remove/Lift out.

OWEX5B Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	47	67.14	1.00	67.14
Likely	13	18.57	0.75	13.93
Arguable	7	10.00	0.50	5.00
Suspect	1	1.43	0.25	0.36
Wrong	2	2.86	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**86.43**

OWEX5C: Fully explain what you think this person is doing in segment 3 of the pictogram.
Comprehension Criteria: Throw door out of plane.

OWEX5C Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	36	51.43	1.00	51.43
Likely	7	10.00	0.75	7.50
Arguable	8	11.43	0.50	5.71
Suspect	2	2.86	0.25	0.71
Wrong	8	11.43	0.00	0.00
Opposite	9	12.86	-1.00	-12.86
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**52.50**

OWEX5D: Fully explain what you think this person is doing in segment 4 of the pictogram.
Comprehension Criteria: Step out.

OWEX5D Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	16	22.86	1.00	22.86
Likely	43	61.43	0.75	46.07
Arguable	4	5.71	0.50	2.86
Suspect	3	4.29	0.25	1.07
Wrong	4	5.71	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**72.86**

OWEX5E: Fully explain what you think this person is doing in segment 5 of the pictogram.
Comprehension Criteria: Help other passengers off wing.

OWEX5E Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	40	57.14	1.00	57.14
Likely	7	10.00	0.75	7.50
Arguable	17	24.29	0.50	12.14
Suspect	1	1.43	0.25	0.36
Wrong	5	7.14	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**77.14**

31. **Overwing Exits (OWEX6)**



OWEX6A: Fully explain what you think this person is doing in segment 1 of the pictogram.
Comprehension Criteria: Look outside and pull handle down.

OWEX6A Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	3	4.29	1.00	4.29
Likely	22	31.43	0.75	23.57
Arguable	23	32.86	0.50	16.43
Suspect	15	21.43	0.25	5.36
Wrong	7	10.00	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**49.64**

OWEX6B: Fully explain what you think this person is doing in segment 2 of the pictogram.
Comprehension Criteria: Remove/Lift out.

OWEX6B Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	46	65.71	1.00	65.71
Likely	20	28.57	0.75	21.43
Arguable	1	1.43	0.50	0.71
Suspect	3	4.29	0.25	1.07
Wrong	0	0.00	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**88.93**

OWEX6C: Fully explain what you think this person is doing in segment 3 of the pictogram.
Comprehension Criteria: Place door on seat.

OWEX6C Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	42	60.00	1.00	60.00
Likely	14	20.00	0.75	15.00
Arguable	11	15.71	0.50	7.86
Suspect	0	0.00	0.25	0.00
Wrong	3	4.29	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**82.86**

OWEX6D: Fully explain what you think this person is doing in segment 4 of the pictogram.
Comprehension Criteria: Step out.

OWEX6D Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	20	28.57	1.00	28.57
Likely	39	55.71	0.75	41.79
Arguable	5	7.14	0.50	3.57
Suspect	0	0.00	0.25	0.00
Wrong	6	8.57	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**73.93**

OWEX6E: Fully explain what you think this person is doing in segment 5 of the pictogram.
Comprehension Criteria: Help other passengers off wing.

OWEX6E Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	42	60.00	1.00	60.00
Likely	8	11.43	0.75	8.57
Arguable	13	18.57	0.50	9.29
Suspect	3	4.29	0.25	1.07
Wrong	4	5.71	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**78.93**

32. **Turbulence/Seat Belt (T1)**



T1: Describe exactly what you think this pictogram means.
Comprehension Criteria: Do not unfasten your seat belt during turbulence.

T1 Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	43	61.43	1.00	61.43
Likely	22	31.43	0.75	23.57
Arguable	0	0.00	0.50	0.00
Suspect	2	2.86	0.25	0.71
Wrong	3	4.29	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**85.71**

33. **Take off and Landing (TLS1)**



TLS1: Fully describe what you think segment 1 means.
Comprehension Criteria: <u>During take off and landing.</u>

TLS1 Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	53	75.71	1.00	75.71
Likely	9	12.86	0.75	9.64
Arguable	1	1.43	0.50	0.71
Suspect	2	2.86	0.25	0.71
Wrong	5	7.14	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**86.79**

34. **Take off and Landing (TLS2)**



TLS2: Describe what you think the difference is between these two pictograms.
Comprehension Criteria: Items on left may not be used at any time. Items on right may not be used during take off and landing.

TLS2 Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	30	42.86	1.00	42.86
Likely	5	7.14	0.75	5.36
Arguable	6	8.57	0.50	4.29
Suspect	8	11.43	0.25	2.86
Wrong	19	27.14	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	2	2.86	0.00	0.00
Total	**70**	**100.0**		**55.36**

35. **Take off and Landing (TLS3)**



TLS3: Fully describe what you think this pictogram means.
Comprehension Criteria: <u>During take off, landing, and flight, no smoking or using a cell phone, radio, radio controlled devices, or electronic entertainment devices.</u>

TLS3 Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	23	32.86	1.00	32.86
Likely	21	30.00	0.75	22.50
Arguable	15	21.43	0.50	10.71
Suspect	7	10.00	0.25	2.50
Wrong	3	4.29	0.00	0.00
Opposite	1	1.43	-1.00	-1.43
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**67.14**

36. **Warning (W1)**

Study this entire pictogram.

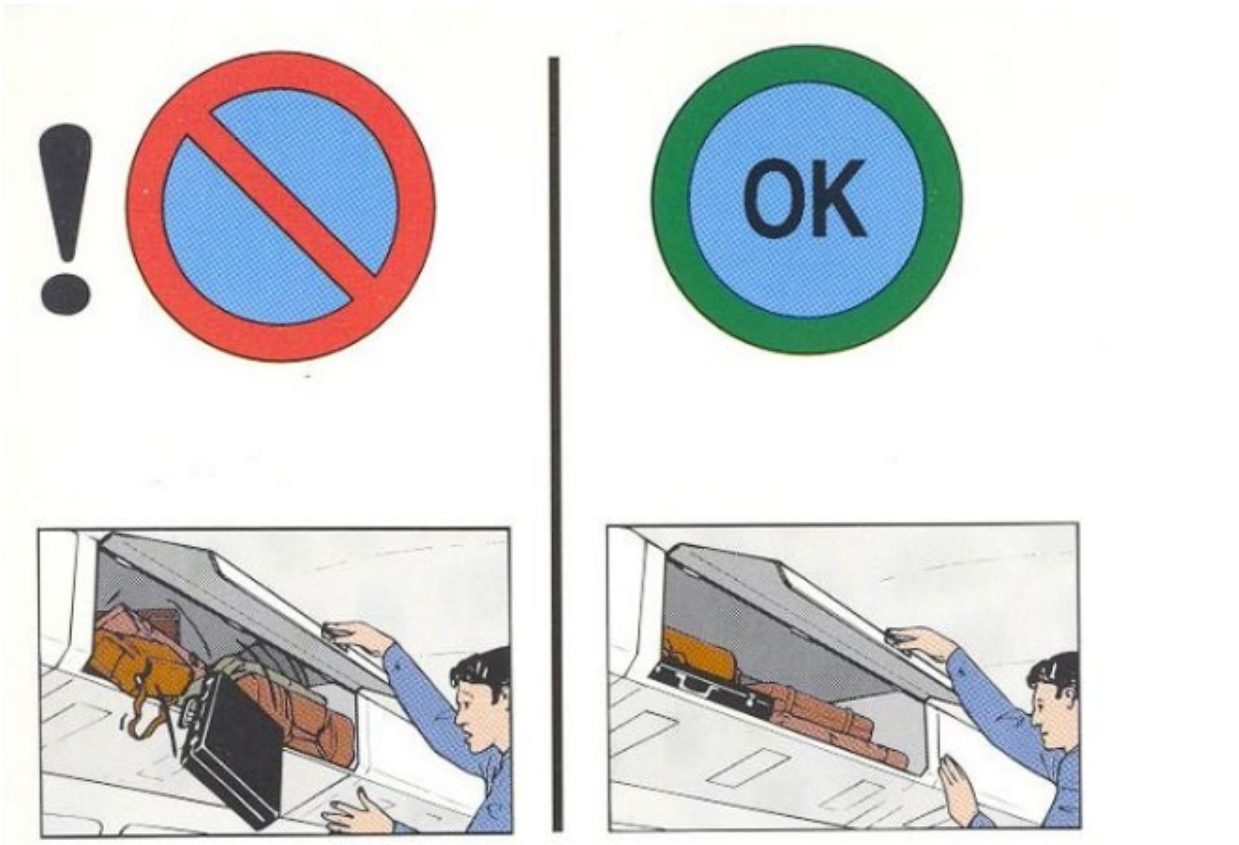


W1: Describe exactly what you think the section outlined in blue indicates.
Comprehension Criteria: Warning! Look out the window and do not open the door or exit if you see smoke, fire, or dangerous debris.

W1 Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	13	18.57	1.00	18.57
Likely	10	14.29	0.75	10.71
Arguable	8	11.43	0.50	5.71
Suspect	12	17.14	0.25	4.29
Wrong	21	30.00	0.00	0.00
Opposite	6	8.57	-1.00	-8.57
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**30.71**

37. **Warning (W2)**



W2: Compare and contrast these two situations.
Comprehension Criteria: Don't do this/do this. Not cautious/Be cautious while opening bin.

W2 Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	8	11.43	1.00	11.43
Likely	5	7.14	0.75	5.36
Arguable	7	10.00	0.50	5.00
Suspect	39	55.71	0.25	13.93
Wrong	11	15.71	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**35.71**

38. **Water Evacuation (WE1)**



WE1: What do you think the green arrow indicates and what will happen?
Comprehension Criteria: Pull the handle to deploy the slide.

WE1 Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	21	30.00	1.00	30.00
Likely	5	7.14	0.75	5.36
Arguable	2	2.86	0.50	1.43
Suspect	14	20.00	0.25	5.00
Wrong	23	32.86	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	5	7.14	0.00	0.00
Total	**70**	**100.0**		**41.79**

39. **Water Evacuation (WE2)**



WE2A: Describe what you think segment 1 of the pictogram means.
Comprehension Criteria: Board the slide/raft.

WE2A Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	54	77.14	1.00	77.14
Likely	2	2.86	0.75	2.14
Arguable	5	7.14	0.50	3.57
Suspect	5	7.14	0.25	1.79
Wrong	4	5.71	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**84.64**

WE2B: Describe what you think segment 2 of the pictogram means.
Comprehension Criteria: Lift/Open flap.

WE2B Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	15	21.43	1.00	21.43
Likely	4	5.71	0.75	4.29
Arguable	8	11.43	0.50	5.71
Suspect	19	27.14	0.25	6.79
Wrong	19	27.14	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	5	7.14	0.00	0.00
Total	**70**	**100.0**		**38.21**

WE2C: Describe what you think segment 3 of the pictogram means.
Comprehension Criteria: Pull up on the cord to release.

WE2C Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	11	15.71	1.00	15.71
Likely	20	28.57	0.75	21.43
Arguable	11	15.71	0.50	7.86
Suspect	8	11.43	0.25	2.86
Wrong	14	20.00	0.00	0.00
Opposite	5	7.14	-1.00	-7.14
None	1	1.43	0.00	0.00
Total	**70**	**100.0**		**40.71**

WE2D: Describe what you think segment 4 of the pictogram means.
Comprehension Criteria: Cut line/rope.

WE2D Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	12	17.14	1.00	17.14
Likely	4	5.71	0.75	4.29
Arguable	13	18.57	0.50	9.29
Suspect	2	2.86	0.25	0.71
Wrong	24	34.29	0.00	0.00
Opposite	13	18.57	-1.00	-18.57
None	2	2.86	0.00	0.00
Total	**70**	**100.0**		**12.86**

WE2E: Describe what you think segment 5 of the pictogram means.
Comprehension Criteria: Pull knife against rope to cut.

WE2E Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	6	8.57	1.00	8.57
Likely	5	7.14	0.75	5.36
Arguable	7	10.00	0.50	5.00
Suspect	2	2.86	0.25	0.71
Wrong	25	35.71	0.00	0.00
Opposite	12	17.14	-1.00	-17.14
None	13	18.57	0.00	0.00
Total	**70**	**100.0**		**2.50**

40. **Water Evacuation (WE3)**



WE3A: Fully describe what you think segment 4 means.
Comprehension Criteria: Inflate your lifevest at or outside the exit as you prepare to board the life raft.

WE3A Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	12	17.14	1.00	17.14
Likely	16	22.86	0.75	17.14
Arguable	15	21.43	0.50	10.71
Suspect	8	11.43	0.25	2.86
Wrong	17	24.29	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	2	2.86	0.00	0.00
Total	**70**	**100.0**		**47.86**

WE3B: Fully describe what you think segment 7 means.
Comprehension Criteria: Use the knife in the survival kit to cut the line tethering the life raft to the airplane.

WE3B Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	7	10.00	1.00	10.00
Likely	26	37.14	0.75	27.86
Arguable	2	2.86	0.50	1.43
Suspect	5	7.14	0.25	1.79
Wrong	13	18.57	0.00	0.00
Opposite	13	18.57	-1.00	-18.57
None	4	5.71	0.00	0.00
Total	**70**	**100.0**		**22.50**

41. **Water Evacuation (WE4)**



WE4: Fully describe what you think each of the symbols in the red block means.
Comprehension Criteria: Landing in water. Look outside. If you see fire, smoke, or debris, do not exit.

WE4 Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	33	47.14	1.00	47.14
Likely	9	12.86	0.75	9.64
Arguable	7	10.00	0.50	5.00
Suspect	6	8.57	0.25	2.14
Wrong	4	5.71	0.00	0.00
Opposite	11	15.71	-1.00	-15.71
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**48.21**

42. **Restrooms for Men and Women (STDS1)**



STDS1: Describe what you think this symbol means.
Comprehension Criteria: Restrooms for men and women

STDS1 Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	30	42.86	1.00	42.86
Likely	26	37.14	0.75	27.86
Arguable	11	15.71	0.50	7.86
Suspect	2	2.86	0.25	0.71
Wrong	1	1.43	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**79.29**

43. **Fire Extinguisher (STDS2)**

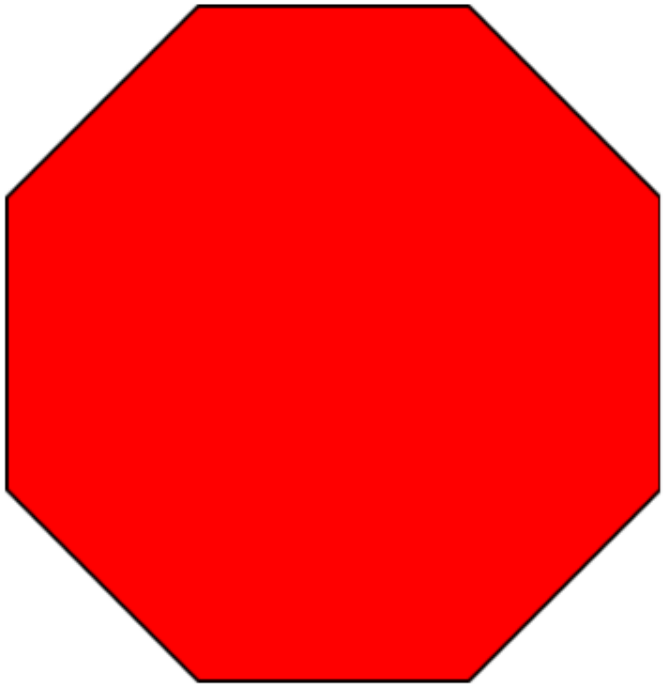


STDS2: Describe what you think this symbol means.
Comprehension Criteria: Fire Extinguisher

STDS2 Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	54	77.14	1.00	77.14
Likely	0	0.00	0.75	0.00
Arguable	7	10.00	0.50	5.00
Suspect	2	2.86	0.25	0.71
Wrong	7	10.00	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**82.86**

44. **Stop (STDS3)**

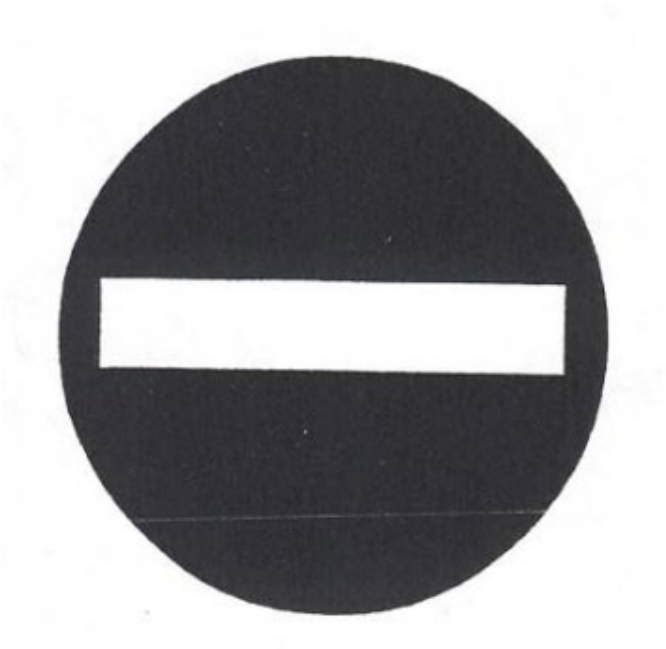


STDS3: Describe what you think this symbol means.
Comprehension Criteria: Stop

STDS3 Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	67	95.71	1.00	95.71
Likely	2	2.86	0.75	2.14
Arguable	1	1.43	0.50	0.71
Suspect	0	0.00	0.25	0.00
Wrong	0	0.00	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**98.57**

45. **Do Not Enter (STDS4)**



STDS4: Describe what you think this symbol means.
Comprehension Criteria: Do Not Enter

STDS4 Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	16	22.86	1.00	22.86
Likely	5	7.14	0.75	5.36
Arguable	6	8.57	0.50	4.29
Suspect	10	14.29	0.25	3.57
Wrong	32	45.71	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	1	1.43	0.00	0.00
Total	**70**	**100.0**		**36.07**

46. **Biohazard (STDS5)**



STDS5: Describe what you think this symbol means.
Comprehension Criteria: Biohazard

STDS5 Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	18	25.71	1.00	25.71
Likely	17	24.29	0.75	18.21
Arguable	20	28.57	0.50	14.29
Suspect	9	12.86	0.25	3.21
Wrong	5	7.14	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	1	1.43	0.00	0.00
Total	**70**	**100.0**		**61.43**

47. **Warning/Safety Alert (STDS6)**



STDS6: Describe what you think this symbol means.
Comprehension Criteria: Warning/Safety Alert

STDS6 Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	21	30.00	1.00	30.00
Likely	22	31.43	0.75	23.57
Arguable	8	11.43	0.50	5.71
Suspect	13	18.57	0.25	4.64
Wrong	6	8.57	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**63.93**

48. **Prohibited (STDS7)**



STDS7: Describe what you think this symbol means.
Comprehension Criteria: Prohibited/No

STDS7 Question Score

Comprehension Category	Frequency	Percent	Weight	Comprehension Score
Certain	54	77.14	1.00	77.14
Likely	6	8.57	0.75	6.43
Arguable	10	14.29	0.50	7.14
Suspect	0	0.00	0.25	0.00
Wrong	0	0.00	0.00	0.00
Opposite	0	0.00	-1.00	0.00
None	0	0.00	0.00	0.00
Total	**70**	**100.0**		**90.71**