Socrates Learning Management System
Course Creation Documentation
Version 0.6b

Prepared by

D'Arcy Norman

Learning Software Development, Ltd.

February 1, 2003

Table of Contents

Introduction

History of the Socrates LMS

The Socrates LMS is a direct descendant of a Learning Object Repository prototype application developed at the University of Calgary. It provides a set of additional functionality on top of the repository, in order to enable the implementation of a Learning Management System.

The repository had existing functionality to support storage and manipulation of IMS Metadata (1.1) documents, as well as user account information. The Socrates LMS was designed to leverage the concepts and techniques developed as part of that repository, in a new and separate software application.

Components that make up a course

Relationship Diagram

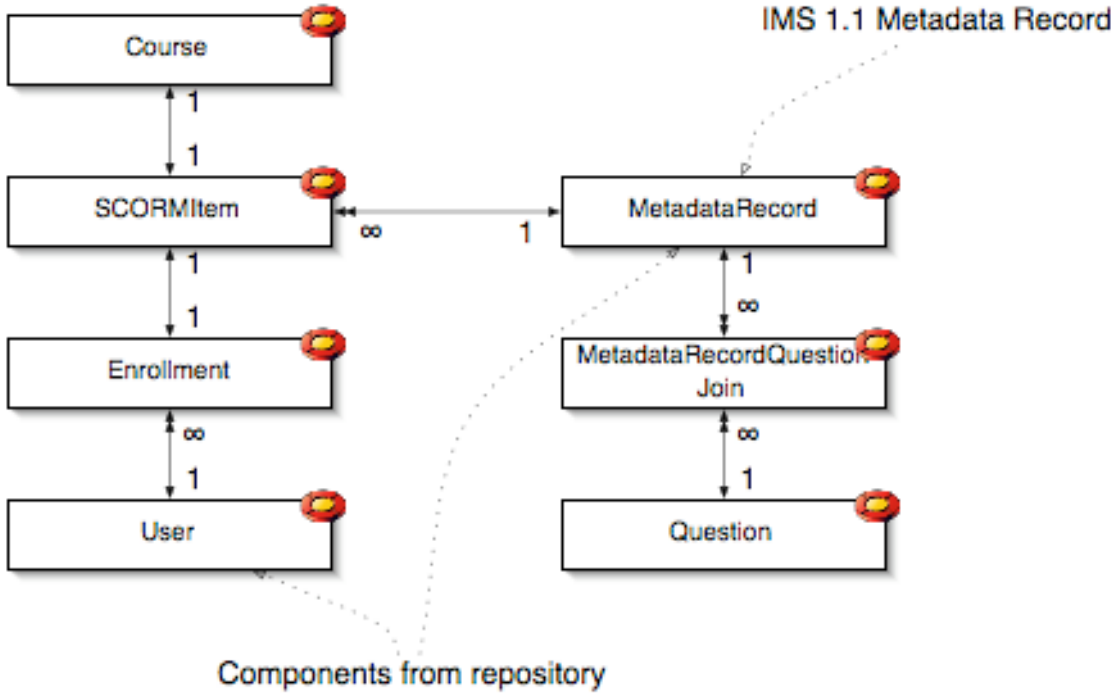


Figure 1. Relationship between components of the Socrates LMS

IMS Metadata Records

The repository that was used as a base for the LMS was designed to store IMS 1.1 Metadata records (insert reference to online specification). This provides a foundation for the storage of information used in the storage and retrieval of content used as part of a course in the LMS.

IMS Metadata records are divided into a number of sections, but not all of them are used in the context of this LMS. The sections which are relevant to this LMS are General, Classification, Technical, Lifecycle and Relation.

Required elements in the IMS 1.1 Metadata Records:

general.title.langstring

technical.location

Recommended additional elements:

classification.keywords.langstring

classification.purpose.langstring

general.description.langstring

lifecycle.contribute.centity.vcard

lifecycle.contribute.date

lifecycle.contribute.role.langstring

Optional additional elements:

relation.kind.langstring

relation.resource.entry

rights.copyrightandotherrestrictions

rights.description.langstring

technical.format.langstring

technical.size

SCORMItem records

The SCORMItem table is used to provide structure to the set of IMS Metadata records that make up a course. This table enables the LMS to generate and store course structures that are conceptually compatible with IMS Content Aggregation or SCORM Content Packages. This table is a recursively joined table, enabling it to represent infinitely deep (or shallow) course structures. Each SCORMItem record has its own Title, Visibility (active state), and is joined to a single IMS Metadata Record which in turn provides additional information like Location of the resource associated with this portion of the course.

The Table of Contents of a course is directly generated from the records in this table. SCORMItem records marked with isRoot = true are assumed to be root nodes of a course structure, and are treated as courses themselves. SCORMItems with isVisible = false are assumed to be disabled, and are thus not added to the course structure. SCORMItems with a non-zero Metadatarecord value are assumed to have associated content, and will display the resource described by the joined IMS Metadata Record when selected. SCORMItems with a Metadatarecord = 0 are assumed to have no associated content. These items are not uncommon – the root node of a course has no associated content, neither does the chapter/module-level items of a course.

Fields in TBL_SCORMItem Table:

FrontBase Field	EOF Attribute	Type	Description
TITLE	title	varchar(255)	Stores the title of this record, to be used in the table of contents for any course containing it.

IS_ROOT	IsRoot	boolean	Each course must have a single IS_ROOT=true record, which acts as the root node of the table of contents, with all modules and pages being descendant from it.
IS_VISIBLE	isVisible	boolean	Stores the "active" state of a SCORMItem record. If honoured, a record with IS_VISIBLE=false should be ignored in a table of contents (and in generating tests…)
ITEM_ID	itemID	int	Primary Key for this record. Stores the unique identifier for the SCORMItem record.
PARENT_ID	parentID	int	ITEM_ID of parent record in course structure hierarchy. Can be 0 if IS_ROOT=true, or can be the ITEM_ID of the root node, or can be the ITEM_ID of a module node…
PUBLISHER_ID	publisherID	int	BRAND_ID of the associated publishing brand (linked to TBLBrand)
RESOURCE_ID	resourceID	int	METADATA_RECORD_ID of any associated educational object in the repository to be used when displaying this SCORMItem in the course. May be 0 if no educational object is related (i.e., for a record where IS_ROOT=true, or for a module/chapter record).

Course Record

The Course record is technically optional, but is used to provide full functionality in displaying a table of contents for a course (the Course Menu). This record stores a link to the thumbnail image used to represent the course, as well as the cost, provider, and description of the course. This record also determines if a course should attempt to generate a test or not. This record must have the same primary key value as the root SCORMItem node record for the course.

Fields in TBL_COURSE Table:

FrontBase Field	EOF Attribute	Type	Description
DESCRIPTION	_description	varchar(1024)	Stores the description of this course, to be used in the Course Menu for this course.
COST	cost	int	The cost (in dollars) of an enrollment in this course (or 0 if the course is free).
COURSE_ID	courseID	int	Primary key for this record. Stores the unique identifier for the Course record. Should match the root SCORMItem for the course (1:1 relation to TBLSCORMItem)
HASTEST	hasTest	boolean	Does this course have a test associated with it? If this is set to TRUE, the "Start

			with it? If this is set to TRUE, the "Start Test" button should be displayed, and the LMS should attempt to generate a test based on the course contents. If the value is false, don't display the button (and therefore don't attempt to generate a test)
INSTITUTION_ID	institutionID	int	BRAND_ID of the associated publishing brand (linked to TBLBrand)
THUMBNAILURL	thumbnailURL	varchar(1024)	URL of the image to be used for the thumbnail image for this course on the Course Menu page. Can be on any server, as long as it's visible to the end user.
TITLE	title	varchar(1024)	DEPRECATED. LMS now uses the title of the SCORMItem at the root of the course structure hierarchy.
PROVIDER	provider	varchar(1024)	String used in menus to represent the provider of the course (i.e., "MAVC", "Socrates", etc…)

Question table

The Question table stores the data used to generate individual test questions in a course test. This record stores the question itself, as well as up to 5 alternate answers, correct and incorrect responses for each alternate, and the correct answer for the question.

A Question record is not directly associated with any course or content, and may be re-used in any course, in any order.

Fields in TBL_QUESTION Table:

FrontBase Field	EOF Attribute	Type	Description
QUESTION_ID	questionID	Int	Primary key for this record. Stores the unique identifier for the Question record.
DESCRIPTOR	descriptor	varchar(1024)	The descriptor for this question.
ANSWER_A	answerA	varchar(1024)	The text to display for answer A
ANSWER_B	answerB	varchar(1024)	The text to display for answer B
ANSWER_C	answerE	varchar(1024)	The text to display for answer C
ANSWER_D	answerD	varchar(1024)	The text to display for answer D
ANSWER_E	answerE	varchar(1024)	The text to display for answer E
RESPONSE_A	responseA	varchar(1024)	The text to display when selecting A
RESPONSE_B	responseB	varchar(1024)	The text to display when selecting B
RESPONSE_C	responseC	varchar(1024)	The text to display when selecting C
RESPONSE_D	responseD	varchar(1024)	The text to display when selecting D

RESPONSE_E	responseE	varchar(1024)	The text to display when selecting E
CORRECT_ANSWER	correctAnswer	int	Numerical representation of correct answer (A = 1, B = 2… E = 5)

Metadata_Question_Join table

This table is used to associate existing Question records with IMS Metadata Records, and by extrapolation, to at least one course. Multiple Metadata_Question_Join records may be used to associate a single Question with multiple MetadataRecord records, and therefore multiple courses. The fields of this table are only the primary keys of the Question and MetadataRecord to be associated in a many-to-many relationship.

Fields in TBL_METADATA_QUESTION_JOIN Table:

FrontBase Field	EOF Attribute	Type	Description
METADATARECORD_ID	metadataRecordID	int	Primary key of the educational object to be associated with a question.
QUESTION_ID	questionID	int	Primary key of the question to be associated with an educational object.

CourseTopic Table

This table is used to refine course listing in the Course Catalog screens. Courses can be assocated with specific course topics, enabling the user to show only those courses for a given topic.

Fields in TBLCOURSETOPIC Table:

FrontBase Field	EOF Attribute	Type	Description
TOPICID	topicID	int	Primary key of the course topic record.
TOPICTITLE	topicTitle	varchar(256)	Title of this topic. To be used in the Topics menu to represent the topic, for selecting related courses.

CourseTopicSCORMItemJoin Table

This table is used to join the root SCORMItem record for a course with any number of relevant CourseTopic records. This is a many:many relationship for a SCORMItem to the CourseTopic table.

Fields in TBLCOURSETOPICSCORMITEMJOIN Table:

FrontBase Field	EOF Attribute	Type	Description
SCORMITEMID	SCORMItemID	int	Primary key of the root SCORMItem node to relate to a topic.
COURSETOPICID	topicID	int	Primary key of the topic to be associated with SCORMItem/course

			with SCORMItem/course.
JOINID	joinID	int	Primary key of this join record. Not used for anything outside of the storage of this record.

Creating a Course

Sample Course: Management of Allergic Rhinitis

This course was provided for implementation in typical format. A set of HTML pages and supporting files were produced, and a separate course description document was provided. Following is a breakdown of the basic tasks required to implement this course in the Socrates LMS.

Media files

The most concrete starting point for course creation is in gathering the media files used to present the course. This allows for course creation to adapt to any changes which may have been required during media creation. If course creation began with a static table of contents, there would be little flexibility to accommodate design constraints or innovations.

At this stage, only the .html files are necessary. Supporting media such as images and videos are not necessary. It is ideal if the filenames of the .html files become locked at this stage. Publish these .html files to their final location on a web server (such as the /courses/<provider>/coursename directory on socrateslearning.com). This reserves the filenames, and allows initial testing of the course during implementation in the LMS.

The recommended hierarchy for the courses directory on the socrateslearning.com webserver is this:

http://www.socrateslearning.com/courses/

<provider>/ where provider is an abbreviated and web-friendly label for the producer or company producing the course (for example “socrates”, “mavc” or “edumed”)

<coursename> where coursename is an abbreviated and web-friendly label for the course itself (for example “rhinitis”, “cancercare”, or “osteoporosis”).

An example course path might be something like:

http://www.socrateslearning.com/courses/socrates/samplecourse/

This path, as published by the webserver, is mapped to the physical directory

/Library/WebServer/Documents/courses/socrates/samplecourse/

on the Socrateslearning webserver.

Define Structure (Table of Contents)

Once the .html files have been identified and published, the exact structure of the course can begin to be identified. This exact structure is usually subtly different from the originally planned structure, whether for technical or pedagogical reasons.

There is one limiting factor in the behaviour of the Socrates LMS that directly impacts the structure of courses. The only real rule in course creation is that “Thou shalt not have Pages at the Root of thine Course.” Pages (nodes that have associated metadata objects and therefore will present the user with a web page when selected) may be placed within Chapter nodes (also called Module nodes), and all Pages within a Module will be presented properly. Pages at the root of a course will be presented, but inter-page navigation within the course becomes confusing to the user.

A simple course structure should look something like:

Root

Chapter 1

Page 1

Page 2

Page 3

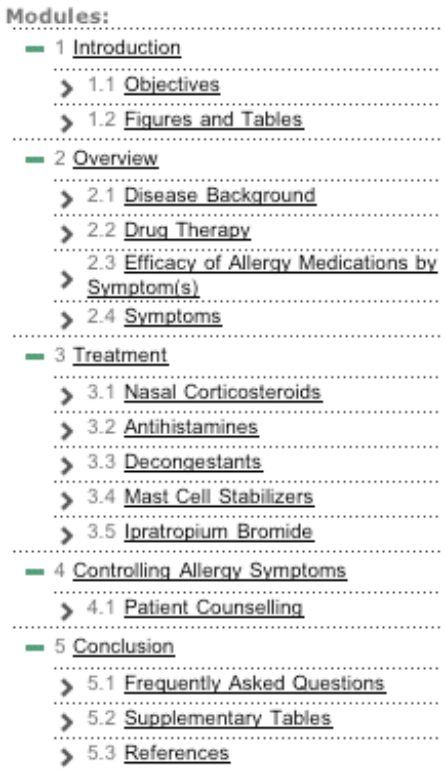
Chapter 2

Page 4

Page 5

Page 6

The specific structure for Management of Allergic Rhinitis looks like:



Once the structure of the course has been laid out, and approved by appropriate partners (course producer, Socrates Learning, content designer…), any gaps or missing content can be identified and filled, with modifications to the media and course structure as needed.

Add Learning Objects to Metadata Repository

Now that the course has been defined as concretely as possible, it is time to start entering data into the LMS database. The first step of this process is adding Learning Objects to the Metadata Repository. Learning Objects are simply described as a combination of media (the web pages) and some additional metadata which provides contextual information such as:

- Where is the media?
- What is it called?
- How is it described?
- Who created it?
- What are the rights associated with the media?
- And many other bits of data (just look at the complexity of the database used to store it!)

The process of adding Learning Objects to the Metadata Repository has been somewhat simplified. Log into the Socrates LMS, and if your account has Administrative privileges for the brand of the LMS that you are using, you will see an “Add Object” link in the Administration tool set in the left sidebar. (note: this link will be prettied up as soon as we have finalized the title of the link and produced a fancy graphic for it).

The Add Object page brings up a number of text fields for entering data about the new learning object. Some of these fields are mandatory, some are optional, and some are just plain meaningless (but are included for adherence to the IMS 1.1 specification).

These fields are required for a learning object to be used by the Socrates LMS:

- General Title
- General Description
- Technical Format (use “text/html” for web pages)
- Technical Location (the absolute or server-relative URL of the web page)

These fields are optional:

- General Keywords
- Classification Keywords
- Rights CopyrightAndOtherRestrictions
- Lifecycle Contributor
- Technical Size
- Technical Requirements

Once the data has been entered for a learning object, click “Save” to store it in the database. A whole bunch of joined records will be generated and committed into the database, so be patient if it takes a second or two.

Once it’s saved into the database, you should be presented with the Metadata Record ID for that object. That’s important. Write it down (as well as where it belongs in the course structure) – we’ll be using that in a minute…

Lather, Rinse, Repeat.

Structure – SCORMItems

Now that the Learning Objects to be used in a course have been added to the repository, a course structure can be generated. Remember that the reason the Socrates LMS uses Learning Objects linked to the course structure, is to enable reusability of these objects. Objects can be

used in any number of courses, allowing for efficiencies of content creation, as well as potential for customizability of the course. All that is required to assemble a course is to create a few records that provide structure to a subset of Learning Objects in the repository.

The most straightforward method of manually creating the data for the various SCORMItem records is to enter relevant information into a spreadsheet (see Appendix 1: SCORMItem Content for Management of Allergic Rhinitis).

Make sure that all SCORMItemID values are unique in the database.

Here are the steps involved with generating the SCORMItem records (refer to Appendix 1: SCORMItem Content for Management of Allergic Rhinitis for detailed example of the data produced by this process):

1. Define the root SCORMItem for a course. This will act as the hook for the LMS to rebuild the course structure. It is used in the Course Directory to list the course title. It should have a ParentID of 0 (since a root item has no parent). It should have an "isRoot" value of 1 (true). Additionally, it should have a MetadataRecordID value of 0, since no content is directly associated with the root.
2. Define the first module. Add a SCORMItem record for Module #1 (typically titled "Introduction"). It should have a ParentID value equal to the SCORMItemID of the root SCORMItem in this course. It should have an OrderInParent value of 1, and an isRoot value of 0 (false). It should have a MetadataRecordID of 0, since no content is directly associated with the Module.
3. Add Pages for any content belonging in this Module. They should have ParentID values equal to the SCORMItemID value of the Module record, and isRoot values of 0 (false). The OrderInParent value should be whatever page number this is in the Module (1, 2, 3, 4, 5…). Since the Pages have content associated with them, make sure the MetadataRecordID value is equal to the ID of the appropriate Learning Object in the repository. When this Page is presented by the LMS, it will look up the joined Learning Object and display that in the browser.
4. Repeat this process for all Modules and Pages in the course.

Once the data has been generated, use Frontbase Manager to manually add the records as defined in the spreadsheet. Copy-and-paste works well, but be careful of the nasty Microsoft Characters that may be embedded as part of a source Word document. The SQL query used to store the data may puke on these characters (typical offenders are the Smart Quotes).

> Note that the current implementation of the LMS requires titles for SCORMItems that are linked to Learning Objects (i.e., acting as Pages). This essentially requires duplicating the title from the Learning Object into the SCORMItem record, which is not a very clean or elegant way to generate a title for a course's table of contents. It does allow customization of a title on a per-course basis, but this behaviour should ideally be modified to use the SCORMItem title only if present, and fall back on the title provided for the Learning Object in its IMS metadata entry for general.title.

Course Details – Course record

Now that the course has been added to the LMS, additional data may be entered in order to provide supplementary information on the Course Details page for the course.

The Course Details record will have the same ID as the root SCORMItem for the course, and adds information that does not belong in the SCORMItem record. This information includes

Description, Cost, Provider, and ThumbnailURL (to display an image on the Course Details page). This record also stores a flag that determines if the LMS should attempt to generate a test for this course. For now, be sure to set that flag to false (since we haven't created the test yet, and the course is currently visible to LMS users).

Creating a Test

Test questions in the Socrates LMS are represented by database records that are linked to Learning Objects in the Metadata Repository. If a Learning Object is added to a course (via a link to a SCORMItem record), any test questions associated with that Learning Object are automatically available to that course, and will be presented to the user if a test is generated for the course.

This abstraction will allow non-expert users to assemble courses (once a Course Creation tool has been produced) and the LMS will automatically generate appropriate tests for that course. This could also be used in the creation of remedial or review courses, which may be subsets of one or more courses, and customized by an individual user.

Question table

Refer to Appendix 2: Test Question Data for Managing Allergic Rhinitis for a detailed description of the records used to represent and store questions which are used to generate a test.

Metadata_Question_Join table

Questions may be associated with more than one Learning Object in the Metadata Repository (many:many relation), so we must use a join table to associate question(s) with Learning Object(s).

This is a simple table, with entries for the MetadataRecordID key of the Learning Object, as well as the QuestionID of the question to be associated with it.

Appendix 1: SCORMItem Content for Management of Allergic Rhinitis

Item Title	Filename	Metadata RecordID	SCORM ItemID	SCORM ParentID	Order in Parent	isRoot
Management of Allergic Rhinitis	-	-	181	0	1	1
Objectives	Module_01.htm	1000040	182	181	1	0
Figures and Tables	Module_02.htm	1000041	183	181	2	0
Overview	-	-	184	181	3	0
Disease Background	Module_03_01.htm	1000042	185	184	1	0
Drug Therapy	Module_03_02.htm	1000043	186	184	2	0
Efficacy of Allergy Medications by Symptom(s)	Module_03_03.htm	1000044	187	184	3	0
Symptoms	Module_04.htm	1000045	188	181	4	0
Treatment	-	-	189	181	5	0
Nasal Corticosteroids	Module_05_01.htm	1000046	190	189	1	0
Antihistamines	Module_05_02.htm	1000047	191	189	2	0
Decongestants	Module_05_03.htm	1000048	192	189	3	0
Mast Cell Stabilizers	Module_05_04.htm	1000049	193	189	4	0
Ipratropium Bromide	Module_05_05.htm	1000050	194	189	5	0
Controlling Allergy Symptoms	-	-	195	181	6	0
Introduction	Module_06_01.htm	1000051	196	195	1	0
Patient Counselling	Module_06_02.htm	1000052	197	195	2	0
Summary	Module_06_03.htm	1000053	198	195	3	0
Frequently Asked Questions	Module_07.htm	1000054	199	181	7	0
Supplementary Tables	Module_08.htm	1000055	200	181	8	0
References	references.htm	1000056	201	181	9	0

Appendix 2: Test Question Data for Managing Allergic Rhinitis

correct Answer	AnswerA	AnswerB	AnswerC	AnswerD	Descriptor	questionID	response A	response B	response C	response D	answer E	response E
2	perennial	seasonal	annual	postnasal	T.R. is a 50-year-old man with well-controlled hypertension who complains of nasal itching, sneezing and runny nose. Upon questioning, you learn that his symptoms appear to be caused by tree pollen, and that the same symptoms appear year after year, although he has never felt that he needed to treat them. He does not have a fever or cough, sleeps well at night but is bothered by his symptoms during his work-day (he is an accountant). Which type of allergic rhinitis does T.R. suffer from?	181	Incorrect	Correct	Incorrect	Incorrect		
2	ragweed	tree	seaweed	ragweed	Which pollen season is chronologically first in the calendar year?	182	Incorrect	Correct	Incorrect	Incorrect		
4	leukotrienes	prostaglandins	interleukins	histamine	Which mediator released during the acute phase of an allergic reaction is responsible for most of the patient's symptoms?	183	Incorrect	Incorrect	Incorrect	Correct		
2	an ocular antihistamine	an oral antihistamine	nasal cromolyn sodium	a nasal corticosteroid	T.R. is a 50-year-old man with well-controlled hypertension who complains of nasal itching, sneezing and runny nose. Upon questioning, you learn that his symptoms appear to be caused by tree pollen, and that the same symptoms appear year after year, although he has never felt that he needed to treat them. He does not have a fever or cough, sleeps well at night but is bothered by his symptoms during his work-day (he is an accountant). Which of the following should be considered first for T.R.'s nasal symptoms?	184	Incorrect	Correct	Incorrect	Incorrect		
2	lodoxamide	pseudoephedrine	cetirizine	budesonide	T.R. is a 50-year-old man with well-controlled hypertension who complains of nasal itching, sneezing and runny nose. Upon questioning, you learn that his symptoms appear to be caused by tree pollen, and that the same symptoms appear year after year, although he has never felt that he needed to treat them. He does not have a fever or cough, sleeps well at night but is bothered by his symptoms during his work-day (he is an accountant). Which of the following should be avoided or used cautiously in T.R.?	185	Incorrect	Correct	Incorrect	Incorrect		

2	occurs only with the first allergen exposure	occurs within minutes of allergen exposure	occurs 4-6 hours after allergen exposure	accompanied by nasal hyper-responsiveness	Which of the following correctly describes the early phase immune reaction?	186	Incorrect	Correct	Incorrect	Incorrect
1	the use of air conditioners	avoiding animals	avoiding frequent washing of linens	a and b	Nonpharmacological treatment measures for seasonal allergic rhinitis include(s):	187	Correct	Incorrect	Incorrect	Incorrect
3	topical decongestants reduce sneezing	topical products can be used indefinitely	decongestants can be used in combination with antihistamines	anticholinergic side effects are common	Choose the correct statement regarding decongestant therapy:	188	Incorrect	Incorrect	Correct	Incorrect
1	nasal ipratropium bromide	nasal cromolyn sodium	ocular antihistamine	ocular decongestant	A patient complaining primarily of excessive rhinorrhea may benefit from:	189	Correct	Incorrect	Incorrect	Incorrect
2	chlorpheniramine	fexofenadine	cetirizine	dephenhydramine	The antihistamine least likely to cause sedation is:	190	Incorrect	Correct	Incorrect	Incorrect
2	nonprescription availability	frequent dosing requirement	high incidence of serious side effects	blocks early and late phase reactions	Which of the following is a disadvantage of nasal cromolyn sodium?	191	Incorrect	Correct	Incorrect	Incorrect
4	health care costs	quality of life	economic costs (work productivity)	all of the above	Allergic rhinitis potentially has an impact on:	192	Incorrect	Incorrect	Incorrect	Correct
1	perennial	seasonal	annual	postnasal	Several months later, T.R. returns to the pharmacy. He says that the oral antihistamine you recommended was very effective and allowed him to function well. He would like you to recommend something for him today. He is very congested, and has a runny nose (although the amount of discharge is less than when he had tree allergies). Several weeks ago, he had a fever and cough, and the doctor had prescribed an antibiotic. He says he doesn't have a fever or cough any longer , but that the congestion is particularly problematic. Upon questioning, you learn that he was married. After congratulating him, you probe further and learn that his wife has a Golden Labrador Retriever, named Butterscotch, which sleeps on their bed. Which type of allergic rhinitis is T.R. likely to be suffering from?	193	Correct	Incorrect	Incorrect	Incorrect
2	foul smelling nasal secretions during the winter months	clear rhinorrhea, sneezing and nasal congestion all year round, with periods of exacerbation	sneezing, coughing and myalgias during the winter months	clear rhinorrhea and sneezing during the spring months	Which statement best describes perennial allergic rhinitis?	194	Incorrect	Correct	Incorrect	Incorrect
2	antihistamines	intranasal corticosteroids	nasal saline	topical nasal decongestants	Which of the following therapeutic classes of agents is most effective for the late-phase allergic reaction?	195	Incorrect	Correct	Incorrect	Incorrect

4	get a divorce	get another dog to keep Butterscotch company	T.R. should sleep in another room from his wife and Butterscotch	Butterscotch should sleep in another room from T.R. and his wife	Several months later, T.R. returns to the pharmacy. He says that the oral antihistamine you recommended was very effective and allowed him to function well. He would like you to recommend something for him today. He is very congested, and has a runny nose (although the amount of discharge is less than when he had tree allergies). Several weeks ago, he had a fever and cough, and the doctor had prescribed an antibiotic. He says he doesn't have a fever or cough any longer , but that the congestion is particularly problematic. Upon questioning, you learn that he was married. After congratulating him, you probe further and learn that his wife has a Golden Labrador Retriever, named Butterscotch, which sleeps on their bed. A practical solution for the situation with the Golden Retriever is:	196	Incorrect	Incorrect	Incorrect	Correct
4	HPA axis function blockade	candida fungal infections	sedation	nasal irritation	A common side effect of nasal corticosteroids is:	197	Incorrect	Incorrect	Incorrect	Correct
1	nasal congestion	ocular symptoms	sneezing	rhinorrhea	Consistently, intranasal corticosteroids are not superior to oral antihistamines for:	198	Incorrect	Correct	Incorrect	Incorrect
4	effective dosage in adults	elimination half-life	intranasal bioavailability	growth effects in children	Which of the following areas regarding corticosteroid use in allergic rhinitis requires further study?	199	Incorrect	Incorrect	Incorrect	Incorrect
1	blow nose, prime spray bottle, close off other nostril, breathe in lightly, squirt dose, blow nose	prime spray bottle, close off other nostril, breathe in lightly, squirt dose, blow nose	use topical decongestant, blow nose, and squirt nasal dose in while breathing in lightly	shake bottle, prime bottle, irrigate nose, use topical decongestant, squirt nasal dose in nose	After your recommendation, T.R. comes back from a visit to the doctor with a prescription for fluticasone – 2 sprays in each nostril daily. Which steps (in order) should the patient perform when first using intranasal corticosteroids?	200	Correct	Incorrect	Incorrect	Incorrect
3	symptom relief may take months to achieve	use on an "as needed" basis for best effect	nasal dryness or irritation can occur, but may lessen after a few days	all of the above are appropriate for counselling	Which of the following instructions should be given to a patient with a prescription for a nasal corticosteroid?	201	Incorrect	Incorrect	Correct	Incorrect
2	15-20 minutes	12-24 hours	1-2 weeks	1-2 months	Newer generation intranasal corticosteroids may demonstrate some effect in:	202	Incorrect	Correct	Incorrect	Incorrect
2	1-2 days	1-2 weeks	1-2 months	2-4 months	When using intranasal corticosteroids, a patient should feel maximal effect in:	203	Incorrect	Correct	Incorrect	Incorrect
4	nasal irritation	sneezing	nasal drying	rhinitis medicam	Which adverse event is not encountered when using	204	Incorrect	Incorrect	Incorrect	Correct

	irritation		drying	entosa	intranasal corticosteroids?					
1	notify the prescriber and recommend an alcohol free product	instruct the patient to use saline nasal spray during the day	review administration technique with the patient, explain that his nose should get used to the irritation, and encourage him to resume twice daily use	instruct the patient to add an OTC oral antihistamine to his regimen	After two weeks, you make a follow-up phone call, and T.R. says the medication is not working. For the past week, he has been using only 1 spray in each nostril only once daily because of nasal irritation. What is your next step?	205	Correct	Incorrect	Incorrect	Incorrect